



# Victorian Integrated Survey of Travel & Activity 2007-08

## VISTA07 Motorcycle Follow-Up Survey

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## 1. Introduction

This report, which documents the procedures involved in the design, conduct and analysis of the motorcycle follow-up survey from the Victorian Integrated Survey of Travel and Activity (VISTA07) survey of the Melbourne metropolitan area and five regional centres, is based on the Survey Design Checklist developed as part of the book “Survey Methods for Transport Planning” (Richardson, Ampt and Meyburg, 1995).

The Survey Design Checklist was developed as a checklist to ensure that all important design issues had been addressed in the design of the survey, and as a means of documenting the methodological procedures adopted for the survey. The Checklist is based on the recognition that the conduct of a survey is not an informal procedure. Rather, it follows a series of logical, interconnected steps which progress toward the final end-product of the survey. The stages in a typical sample survey are shown in Figure 1.1.

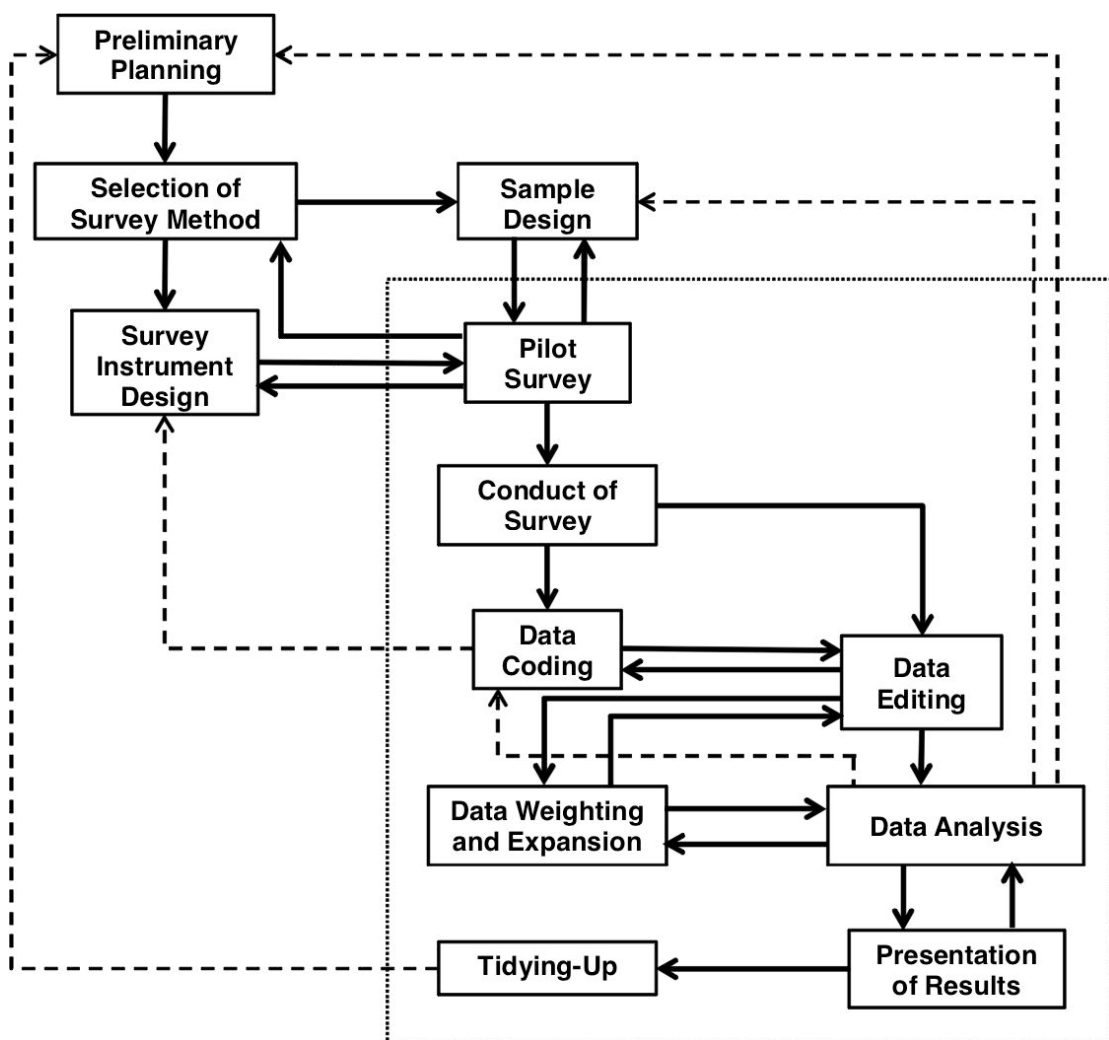


Figure 1.1 The Transport Survey Process

## 2. Preliminary Planning

### 2.1 Project Objectives

The level and type of use of motorcycles is relatively poorly understood, partially because motorcycle licences are often held for many years (sometimes decades) after the person has ceased to ride motorcycles, and because they are often used for a single purpose (e.g. commuting or touring). A better understanding of the actual use of motorcycles will help better target resources to improve the safety and amenity of motorcyclists and other road users.

While the main VISTA07 survey collected some information on motorcyclists along with all other modes, it was a single-day survey and because of the relatively low use of motorcycles within the general community did not collect a substantial amount of information on motorcycle use. This follow-up survey focuses solely on those people with motorcycle licences (as identified by the VISTA07 survey) and asks for more detailed information on their motorcycle use (or lack thereof) over a ten-day period.

Note that the use of the word 'motorcycle', or variants thereof, in this report also refers to the riding of scooters and other similar vehicles.

### 2.2 Survey Objectives

#### 2.2.1 What are the Survey Objectives?

Two key objectives for the data have been identified:

- To complement and extend the goals of the main VISTA07 survey, which were:
  - As a primary source of information for the development of transport analysis tools and models for personal travel. This allows the estimation/assessment of the impacts and transport outcomes of changes to transport infrastructure, systems and services; and
  - To understand and quantify travel behaviour. This allows monitoring of the use of the transport system and assists in assessing the success of transport infrastructure, systems and services. These underpin key planning, policy development and decision-making processes relating to the provision of transport infrastructure and services.
- To provide targeted and quantifiable motorcycle travel behaviour information of the overall populace of motorcycle-licenced persons. In particular, to quantify the characteristics of licenced riders who do not actually ride any more, and to identify safety gear worn by riders and pillion passengers.

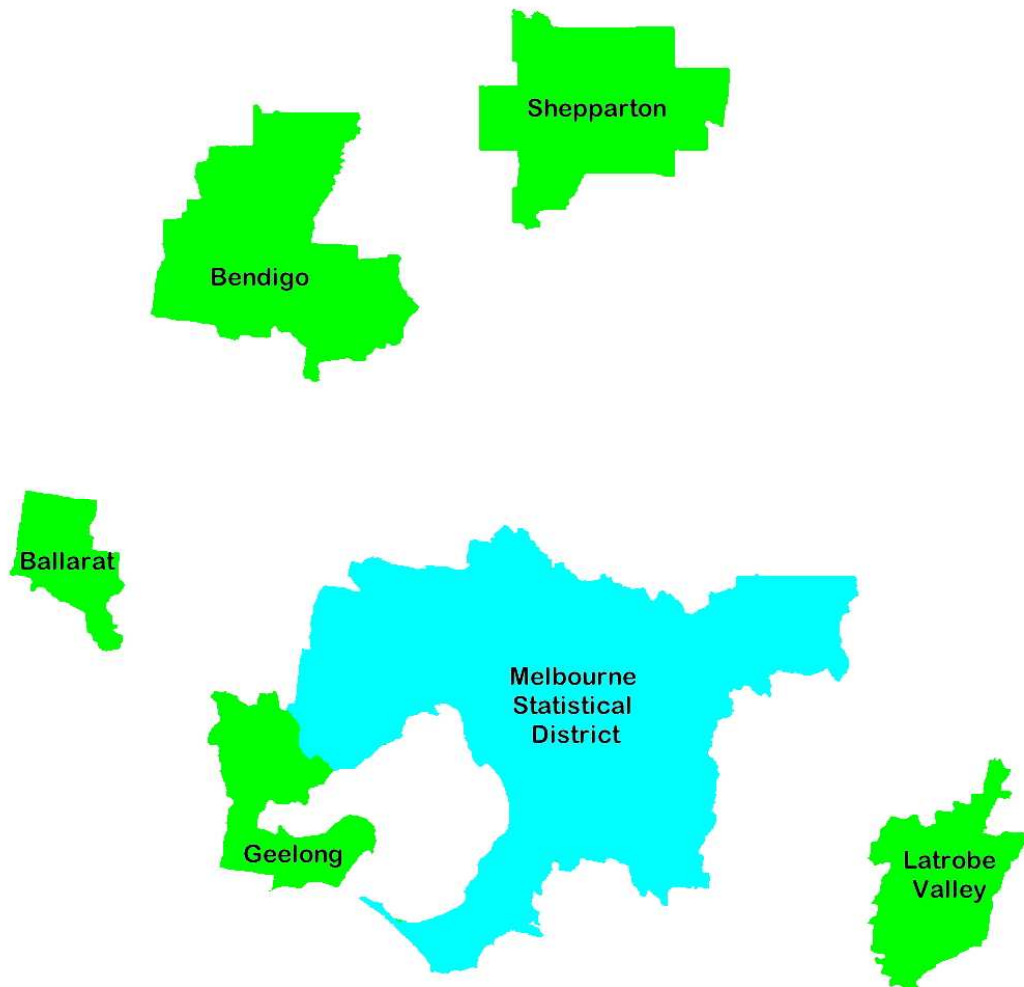
### 2.3 Survey Scope

#### 2.3.1 What was the scope of the Survey?

The scope of the motorcycle follow-up survey was all people who indicated they had a motorcycle licence during the initial VISTA07 survey, from the results obtained during the first ten months of that survey.

As a reminder, the VISTA07 survey scope covered:

- All residents in all occupied private residential households within the Melbourne Statistical Division (MSD); and
- All residents in all occupied private residential households within the regional cities of Geelong, Ballarat, Bendigo, Shepparton and Latrobe Valley (see Figure 2.1); and
- An additional sample of residents living in areas near Activity Centres (mostly in Melbourne, but also in some regional areas).



**Figure 2.1 VISTA07 Study Area**

## **2.4 Review of Existing Information**

### **2.4.1 What prior information was available?**

This survey is effectively a pilot program, and does not have a predecessor as such. However, it draws upon the experience and techniques of the VISTA07 survey and its predecessors, dating back to the Victorian Activity & Travel Survey (VATS) which commenced in December 1993.



Like the main VISTA07 survey, this survey uses a self-completion questionnaire to collect data, and therefore many of the techniques and procedures developed for that survey applied to this follow-up survey.

#### 2.4.2 What secondary information was available for sample expansion?

The initial source of secondary data is the Australian Bureau of Statistics 2006 Census of Population and Housing. This data is available online through the ABS website. This data is used to expand the sample data up to population totals in the study area.

The second source of secondary data is the main VISTA07 data. This data is used to check that the travel patterns measured in the motorcycle survey are consistent with that already recorded in the main survey, and thereby identify any response bias for this follow-up survey.

### 2.5 Definition of Terms

**Study Area** - the Melbourne Statistical Division (MSD) as defined by the Australian Bureau of Statistics (ABS), plus the regional cities of Geelong, Ballarat, Bendigo, Shepparton and Latrobe Valley.

**Occupied Private Dwelling** - as defined by the ABS, this term refers to a private residence which was occupied at the time of the survey.

**Stop** - a place where an activity (including change of mode) is undertaken.

**Trip** - a one-way travel movement from an origin to a destination for a single purpose (including picking up and delivering passengers), but perhaps by multiple modes.

**Gross Sample** – for the main VISTA07 survey, the complete list of household addresses drawn from the sample frame. For this follow-up survey, the complete list of motorcycle-licenced persons identified during the main VISTA07 survey.

**Sample Loss** - for the main VISTA07 survey, those addresses in the Gross Sample from which a response could not reasonably be expected (examples include vacant blocks, commercial premises, demolished houses, vacant houses, and houses that were unoccupied during the period of the survey). For this follow-up survey, sample loss would primarily be due to people moving to a different address in the time between the two surveys. Due to the relatively short time between the two surveys, this sample loss was minimal.

**Net Sample** - the Gross Sample minus the Sample Loss

**Acceptable Survey Return** – an acceptable survey return is a survey return that when processed (including consistency checks) and delivered to the Principal has at least 90% of all data items completed and all key data items completed (the percentage completions described above refer to the data set post-imputation).

**Key Data Items** – as defined in the Brief, and clarified in subsequent discussions, the following are the Key Data Items for the survey:

- Person Data
  - The date the person gained their motorcycle licence; and
  - Whether the person had held their motorcycle licence for more than one year, thereby progressing from the restrictions that are placed on new riders, regardless of their probationary status; and
  - If they did not ride during the ten-day survey period, when they last rode.

- Vehicle Data (if the person rode during the ten-day survey period)
  - The type of vehicle (motorcycle, scooter, or other); and
  - Who owned the vehicle.
- Travel Diary Data (if the person rode during the ten-day survey period)
  - Whether they rode, or not, on each of the ten days; and
  - Which vehicle they primarily used on each of the ten days; and
  - The distance ridden on each day; and
  - The time spent riding on each day; and
  - The suburbs/towns visited on each day; and
  - Whether they rode in a group of three or more on each day, and whether they carried a pillion passenger; and
  - The protective items worn on each day by themselves, and by any pillion passenger.

**Response Rate** - the number of Acceptable Survey Returns divided by the Net Sample

## 2.6 Survey Timetable

### 2.6.1 What was the survey timetable?

This Inception Meeting for the motorcycle surveys project was held in December 2006. The survey arose organically from the VISTA07 survey, and it took some time to settle upon the required number of surveys to be sent out/returned acceptably.

The timetable of the survey was determined largely by that of the VISTA07 survey, in that the recipients of the motorcycle survey were identified on an ongoing basis by the VISTA07 survey. The VISTA07 survey started at the end of May 2007, but it would be the end of August 2007 before the first motorcycle follow-up surveys were sent out. The two surveys then proceeded in parallel, using the sample being progressively extracted from the VISTA07 data.

It was discovered as time went on that the count of motorcycle-licenced people was exceeding that predicted before the start of the motorcycle follow-up survey, and therefore the suggested requirement to send out 400 surveys, and to receive back 100 acceptable surveys involving travel, was met many months before the end of the VISTA07 survey. However, the motorcycle survey was extended to collect more data, and only came to a halt when the main VISTA07 survey office was shut down. As there was a necessary delay between the operations of the two surveys, this meant that not all people with motorcycle licences identified by the VISTA07 survey were contacted. The VISTA07 data was extracted in 11 "batches", but only the first 9 batches (roughly corresponding to the first ten months of data) were used as input to this follow-up survey.

Based on the final Project Management Schedule, the Key Milestones for the project were as shown in Table 2.1.

**Table 2.1 Key Milestones for VISTA07 Motorcycle Survey**

<b>Key Milestones</b>	<b>Start Date</b>	<b>Finish Date</b>
Project Commencement	Dec 2006	-
Project Set-Up	Jan 2007	May 2007
Survey Methodology Design	Feb 2007	May 2007
Sample Design	June 2007	July 2007
Questionnaire (and other materials) Design	April 2007	May 2007
Coding and Editing Design	April 2007	July 2007
Recruitment & Training of Main Survey Field Staff	July 2007	August 2007
Main Survey Travel Days	24 August 2007	22 June 2008
Final Data Submission	March 2009	-
Draft Final Report Submission	March 2009	-
Project Completion	March 2009	-

### 3. Selection of Survey Method

#### 3.1 Survey Time Frame

##### 3.1.1 Cross-sectional or time series?

The motorcycle follow-up survey was designed as a single cross-sectional survey. Some discussion has occurred about VISTA07 being the first stage in an ongoing survey of household travel behaviour, and this might lead to a similarly extended motorcycle survey, but no decisions have been reached on this issue.

#### 3.2 Survey Technique

##### 3.2.1 What is the general survey methodology?

The motorcycle survey methodology is based on a self-completion questionnaire, which is mailed to and back from the licenced motorcyclist. This process is also supplemented by telephone motivational calls, telephone and postal reminders, and telephone clarification calls. The specific steps in the process are:

- Identification of sample from VISTA07 Survey, on a (roughly) monthly basis
- Survey pack deliveries (mailed on Mondays, for surveys starting the following Friday)
- Motivational phone call (Thursday night)
- Survey pack return (using a reply paid envelope sent with the survey, to be returned after the ten day survey period ends – or earlier if the recipient knows they will not be riding during the survey period)
- Survey pack processing and reminders
- Data coding and editing
- Clarification phone calls
- Final data editing and report preparation

The processes are explained in detail in Section 7.2 of this report.

##### 3.2.2 Why was this method selected?

While household surveys conducted by TUTI, such as VISTA07, have progressively led to personal delivery and pick-up to improve response rate, the relatively broad scatter of surveys each week in the motorcycle survey made that less practical. In addition, because this was a more targeted survey, both by topic (motorcyclists) and by sample (people whose household have recently completed a travel survey for us) it was felt that response rates would likely be acceptable even without the “personal touch”. Also, despite it potentially covering ten days rather than one as in the main VISTA07 survey, this survey was notably less complicated, meaning less personal explanation would be necessary and a higher response rate might be expected.

The inclusion of reminder phone calls both before and after the survey period has been found to improve response rate, and clarification phone calls remain a key tool in maintaining high standards of data collection. Both of these techniques were retained for this follow-up survey.

## 4. Sample Design

### 4.1 Target Population

#### 4.1.1 What was the target population?

The target population for this motorcycle follow-up survey was all residents identified as having a motorcycle licence during the VISTA07 survey, which had in turn targeted all occupied private dwellings in the Melbourne Statistical Division (MSD) and in the regional LGAs of Geelong, Ballarat, Bendigo, Shepparton and Latrobe Valley.

As noted earlier (section 2.6.1), only data from the first 9 of 11 batches of VISTA07 surveys were eventually used in this survey. Otherwise, there was no sampling; all people with motorcycle licences received this follow-up survey.

#### 4.1.2 How was it defined and identified?

For further information on the earlier VISTA07 survey and how its sample was selected, and where from, please refer to the 'VISTA Survey Procedures and Documentation' report.

All persons in the responding households were required to identify whether they held motorcycle licences, and from this the sample for the follow-up survey was defined.

### 4.2 Sampling Units

The Sampling Units are the individual residents identified as having motorcycle licences during the VISTA07 survey.

### 4.3 Sampling Frame

#### 4.3.1 What sampling frame was used?

The sampling frame was all residents identified as having motorcycle licences during the VISTA07 survey.

#### 4.3.2 Why was it originally compiled?

It was compiled as part of the main VISTA07 survey.

#### 4.3.3 How well does it perform?

The quality of the sample frame largely arises from that chosen for the VISTA07 survey, and therefore it is recommended that reference be made to this section in that report.

Weighting of the VISTA07 survey data was performed after the completion of that survey, but this weighting had no effect on the sample used for the follow-up motorcycle survey. Therefore it is probable that motorcyclists in the regional areas (especially the Latrobe Valley) and the western and northern portions of Melbourne are under-represented, because those areas were under-represented in VISTA07, and more generally motorcycle licence holders may be over or under-represented as per the demographic that returned the VISTA07 surveys successfully.

However, because substantial information has been collected on the demographics of the people responding, both personally and geographically, it remains possible to weight the

motorcycle survey data afterwards to better match the actual population within all regions, including those that were under-represented in VISTA07.

A majority of the motorcyclists received their follow-up survey within three months of their household completing the VISTA07 survey. Towards the end of both surveys, this delay decreased notably, to as low as four weeks. Due to this relatively small delay, it was not expected that many of the identified motorcycle-licenced persons would have moved from the household, and therefore failed to receive the follow-up survey. Indeed, no surveys were returned on the basis that the addressed property had changed ownership in the interim period.

A further concern was raised early in this project that some people may have missed declaring their holding of a motorcycle licence during the original VISTA07 survey. To counter any such problem, the generic question 'Does anyone else in your household have a motorcycle licence?' was asked whenever a clarification call was made. This question did not reveal any missed motorcyclists, except in the very rare case where a teenager became old enough to qualify for such a licence in the interval between the two surveys. It is therefore fair to conclude that the original VISTA07 survey was likely to have identified all motorcyclists in the household at the time of its completion.

## 4.4 Sampling Method

### 4.4.1 What sampling method was used and why?

No sampling was done. All licenced motorcyclists from the first nine batches of the VISTA07 survey were included in the follow-up survey.

This reflected the relatively low numbers of motorcyclists within the general population, and the wish to maximise the amount of collected data during this survey.

### 4.4.2 Is the sample representative of population?

The original VISTA07 surveys were designed to, as far as practical, evenly distribute the survey over the various portions of Melbourne and the regional areas. However, because the motorcycle survey drew from the successfully completed VISTA07 surveys, some biases will be present. For example, it is known that large families more often fail to complete surveys of the type used in the VISTA07 survey, as the task is seen as unnecessarily onerous. This means the follow-up motorcycle survey most likely has identified less licenced motorcyclists from those larger households.

Substantial demographic information has been collected, however, and can be used to counter such effects by weighting the final data back to the actual population of the study area.

## 4.5 Sampling Bias

### 4.5.1 What sources of sample bias have been considered?

As noted above, the final sample of households from the VISTA07 survey, used as the sample for the follow-up motorcycle survey, was known to be non-representative. However, because the extent of this deviation was known (and could be corrected at a later stage), it was not considered to be a source of bias.

## 4.6 Sample Size and Composition

### 4.6.1 What was the sample size?

As this was a trial survey, with some uncertainty over the sample that would be revealed by the VISTA07 survey, strict sizes for the sample and the number of respondents were not specified at the start of the project. However, it was anticipated that a returned sample of 400 licenced motorcyclists would be sufficient to perform analysis. This target was substantially improved upon, with 688 motorcyclists ultimately returning acceptable surveys.

### 4.6.2 What stratifications were used in the sampling?

No stratifications were used as such in this follow-up survey; however, the stratification of the main survey (five regional regions, eight regions with Melbourne, and the LGAs within those Melbourne regions) would flow through to some extent.

## 4.7 Estimation of parameter variances

### 4.7.1 How will variances in survey results be estimated?

Once the sample data (person, vehicle and travel diary data) have been collected from the households, various statistical descriptions of this data can be calculated. However, realising that these results are obtained from a sample, the results will be subject to a certain degree of sampling error (i.e. if a different sample had been identified by the main survey, different results would have been obtained). It is therefore necessary to calculate the level of sampling error associated with each result (this process is often referred to as Sample Variance Estimation).

In surveys that use Simple Random Sampling (SRS), a series of well-known formulas are often used to estimate Sampling Error from the survey data. However, in real-life surveys, such as this one, there are often considerable deviations from the ideas of simple random sampling. Such surveys often include design refinements such as stratification, multi-stage sampling and the use of clusters as sampling units. Whilst it is theoretically possible to extend the SRS equations to account for these complexities, such extensions often become cumbersome, if not mathematically intractable. It is therefore desirable to use other methods to estimate the degree of sampling error in a sample estimate of the mean.

An attractive means of estimating Sample Variance (or sampling error) is through the techniques of Replication Sampling. There are three primary techniques available:

- Jack-knifing
  - where a subset of observations is removed and new parameter estimates are calculated. In the extreme, with a sample size of  $N$ , a total of  $N$  jack-knife replicates of sample size  $N-1$  can be derived by systematically removing one observation at a time. The variance of results across these  $N$  jack-knife replicates is a precise estimate of the Sample Variance for the original sample.
- Bootstrapping
  - where a new sample of size  $N$  is generated by taking a sample of size  $N$  (with replacement) from the original sample. In this new sample, some of the original observations will be represented multiple times, while other observations will not be represented at all. This process is then repeated many times. The variance of results across these  $N$  bootstrap replicates is an estimate of the Sample Variance

for the original sample. However, unlike the jack-knife estimate, it will not be a precise estimate because there are effectively an infinite number of bootstrap sample variations.

- Replicate Sub-Sampling
  - where the original sample is randomly divided into R sub-samples, each of size  $N/R$ .

The variance of results across these N replicate sub-samples is a multiple of the Sample Variance for the original sample. The variance obtained is larger than the variance of the original sample, because the original sample is R times larger than any of the sub-samples. Therefore, the variance of the original sample is equal to the variance of the sub-sample results divided by R (this means that the standard error of the original sample is the standard deviation across the sub-sample divided by the square root of R). Like the bootstrap estimate, it will not be a precise estimate because there are effectively an infinite number of replicate sub-sample variations.

The choice of method to be used depends on the circumstances under which the calculations are being made. While Jack-knifing has the advantage of being precise (in that it is possible to obtain a single result, if all possible subsets are constructed), it is very calculation intensive. For example, with a sample size of 700 people, a total of 700 sub-samples must be constructed and have their parameters estimated. On the other hand, Replicate Sub-Sampling (with 10 sub-samples) requires that total of only 10 sub-samples must be constructed and have their parameters estimated. The trade-off is that the results obtained from Replicate Sub-Sampling are not precise, because a different allocation of the observations to the 10 sub-samples will result in a different estimate of Sample Variance.

For this survey, therefore, two methods of Sample Variance estimation are used. In all intermediate calculations, Replicate Sub-Sampling (with 10 sub-samples) is used to obtain an estimate of the Sample Variance. The allocation of the observations to the sub-samples is based on a random number between 0 and 9 allocated to each of the observations. This random number is then used to stratify the calculations, such that 10 values of each parameter are obtained (for example in Excel PivotTables) rather than one value of the parameter for the entire sample. For the final results, however, exhaustive Jack-knifing will be used to obtain precise estimates of the Sample Variance (but these calculations will only be performed once on the final data set).

## 4.8 Conduct of Sampling

### 4.8.1 What procedures were used in the final sampling?

No sampling was used; all licenced motorcyclists identified were surveyed.



## 5. Survey Instrument Design

### 5.1 Question Content

There were three major components to the survey questionnaires: the Person Form, the Vehicle Form, and the Travel Diary Form. These are described in detail below.

#### 5.1.1 The Person Form

The Person Form (see Appendix A) asks questions about:

- When (year and month) the person gained their motorcycle licence;
- Whether they have held said licence for more than one year;
- Whether they rode a motorcycle during the survey period of ten days;
  - If they did, how many motorcycles they rode during the survey period; or
  - If they did not, when (date and day of week) they last rode a motorcycle; and
- A contact phone number, in case clarifications were required.

The Vehicle Form (again, see Appendix A) asks questions about:

- What kind of vehicle they rode (a motorcycle, a scooter, or otherwise);
- Make of the vehicle;
- Model of the vehicle;
- Year of construction of the vehicle;
- Engine size (cubic centimetres) of the vehicle; and
- Who owns the vehicle (themselves, another household member, or someone outside the household).

The Travel Diary Form (see Appendix B) asks questions about travel on each of the ten days of the survey. For each of the ten days, it asks:

- Whether they rode;
- What time they started, and finished, riding;
- In which suburb did they start, and finish, riding;
- What was the odometer reading when they started, and finished, riding;
- The reason for riding (multiple reasons may be provided);
- The total time they spent riding;
- Whether they rode with three or more riders at any time;
- Which suburbs (up to four) they visited;
- Which primary roads (up to four) they used;
- Whether they carried a pillion passenger; and
- What protective clothing they, and (if applicable) their pillion passenger, wore.

A form allowing further comments, on either the survey or on motorcycling in general, was also provided (see Appendix C).

## **5.2 Physical Nature of Forms**

### **5.2.1 Cover letters**

A cover letter was enclosed with the questionnaire materials delivered to the survey households. This letter was on VISTA letterhead paper, signed by the Travel Survey Manager from TUTI. The Cover Letter is included in Appendix D.

### **5.2.2 Questionnaire**

The questionnaire was A3 in size, and folded once to form four A4 faces; the front face included a mixture of the person and vehicle form, as later reflected in the data entry program and output data, while the remaining three faces were for the travel diary form. A separate A4 sheet was included for the Comments section.

A reply-paid envelope was included to return the completed survey.

## **5.3 Question Instructions**

### **5.3.1 What instructions were provided for respondents?**

While the questionnaires were designed to be as self-explanatory as possible, instructions were given to respondents in several more ways, namely:

- Cover Letter
  - The Cover Letter included with each Survey Pack (see Appendix D) explained what the chosen person should do to complete the survey.
- Person Form
  - On the top of the Person/Vehicle Form (see Appendix A) are five steps explaining how to complete the survey.

A toll-free number was also provided to allow any further queries to be answered. Overall, however, this survey form was much simpler than the main VISTA07 survey, and as the recipients of this follow-up survey (or someone from their household) had already successfully completed the more complex main survey, it could perhaps be expected that the recipients would be either more willing, or better equipped, to complete the follow-up survey.

## **5.4 Issues Identified With Survey Design**

The survey asked questions about pillion passengers, but the design of the survey implied (but did not state) that only pillion travel when the person being surveyed was the rider was of importance. It was unclear whether pillion travel by the person being surveyed should be included on the form. This should be clarified in any future survey of this type.

It is not expected that this survey design issue will have any significant impact on the data collected for this survey, because:

- while pillion travel was approximately 6% of all trips by motorcycle in the main VISTA07 survey, none of that pillion travel was by licenced motorcyclists; and

- none of the more than 500 days of travel recorded by the motorcycle survey indicated, either by direct comment or by sole use of the pillion protective clothing column, that pillion travel by the survey respondent was the travel being recorded.

A lesser issue was the placement of the phone number question on the Person/Vehicle form. For people who did not travel, and therefore did not have to complete the lower portion of the Person/Vehicle form, a very significant portion failed to include their phone number. While in most cases this did not matter as we had already obtained the household phone number during the main VISTA07 survey, any future use of this survey form, or a variant of it, should bring the phone number field to a more prominent and logical location.

## **6. Pilot Survey**

There was no lead-in pilot survey for this project. To some extent, this project was seen as a pilot itself.

## **7. Survey Administration**

This follow-up survey was conducted in the same offices, and by a subset of the same staff, of the main VISTA07 survey. With its lesser scale, compared to the main VISTA07 survey, and the purposeful restriction of the number of people working on it (see section 8.6.1), training and procedural issues were minimised.

### **7.1 Training Procedures**

The ongoing staff for this follow-up survey comprised:

- A senior I-view staff member performing project management duties, mailing out surveys, and checking them upon return to keep a statistical record of progress; and
- Junior I-view staff members doing reminder calls, using scripts provided to them; and
- A TUTI senior staff member performing the programming, data entry and editing tasks; and
- A second senior I-view staff member occasionally performing data validation or statistical record of progress tasks.

Due to the relative experience of these people, no detailed Training Manual was developed as per the main VISTA07 survey. The two most involved (and senior) people also attended the bulk of the VISTA07 project meetings at DOI, and were therefore aware first-hand of the issues and possible problems involved with this project.

### **7.2 Survey Procedures**

The VISTA methodology is based on a self-completion questionnaire, which is mailed to and back from the surveyed people. This process is also supplemented by telephone motivational calls, telephone and postal reminders, and telephone clarification calls.

#### **7.2.1 Sample Selection**

On a roughly five-weekly basis, data was extracted from the main VISTA07 survey for ongoing analysis of that project. At this time, the details for all motorcycle-licenced persons in that extraction would be identified, thus setting up the mail-outs for the next five weeks. As far as possible, the motorcycle survey recipients would be then scheduled evenly over the coming five weeks, with earlier data from the main survey scheduled first (to minimise the delay between the main and follow-up survey). In the case that multiple motorcyclists came from the same household, they would be scheduled for the same week.

#### **7.2.2 Survey Pack Preparation and Delivery**

The survey form for each selected person would be over-printed with their first name (as provided in the main survey), their person ID from the main survey, and the dates for the specific ten day survey period (which always started on a Friday). Together with an explanatory letter and reply paid envelope, the survey pack was then mailed to the person on the Monday or Tuesday prior to the start of the survey period.

### 7.2.3 Pre-Survey Period Reminder Call

On the Thursday evening immediately prior to the start of the survey period starting, a reminder call was made to the household using the phone number previously identified during the main VISTA07 survey, to remind the recipient that their survey period was starting the next day, and to answer any queries they may have about the survey. A toll-free number was available if the recipient had unresolved queries at some other time.

### 7.2.4 Survey Pack Return and Processing

The survey recipient would return the survey using the reply paid envelope, either after their ten day period had finished, or earlier if they were certain they would not be riding at a later date. At this stage some basic statistics on the returned surveys were collected (e.g. did the person travel?) and the survey would be assessed to see whether a clarification call would be required prior to the entry of data.

Statistics from this stage were compiled on a regular basis to keep both the client and survey staff aware of progress.

The need for nearly all clarification calls was identified prior to the survey reaching data entry stage, given that these surveys were considerable simpler than the main VISTA07 surveys.

### 7.2.5 Post-Survey Period Reminders

In the case that a survey was not returned within a reasonable time (14 days after the survey period finished), a reminder call would be made (if a telephone number had previously been collected) to enhance the survey response rate.

### 7.2.6 Data Entry and Editing

Once any required Clarification Call had been made, the completed Survey Packs were forwarded to the data entry room at Kew, and the data from the questionnaires was entered into computer files using a modified version of the Speedit program (see Section 8.5). As the data was entered, editing routines within Speedit were run to identify any possible errors, but only rarely would a further Clarification Call be required at this stage.

### 7.2.7 Final Data Editing and Report Preparation

Although some general integrity checks were made on an ongoing basis during the conduct of the survey, full-scale analysis of the motorcycle survey data did not commence until after all of its surveys had been entered.

The survey data extracted from Speedit was imported into the final database formats and then checked for omissions, errors and inconsistencies. Weights for the data were collected from the main survey (based on ABS 2006 Census data) or calculated for the new survey (based on comparisons of the two surveys and response weights for the motorcycle survey by a number of demographic factors).

### 7.2.8 Timing of the Process

The various processes outlined above for one week's worth of surveys would typically take a minimum of three weeks to be completed. A rapidly-resolved survey is illustrated in the example given in Figure 7.1:

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Week 1					Sample is extracted from main survey (7.2.1)		
Week 2	Survey is over-printed and survey pack prepared (7.2.2)	Survey pack mailed to recipient (7.2.2)		Pre-survey reminder call made (7.2.3)	Survey period starts		
Week 3							Survey period ends
Week 4	Recipient mails back survey (7.2.4)	Survey returns in mail and is processed (7.2.4)	Clarification call is made to correct omission in survey (7.2.4)	Survey arrives at data entry room, and is entered using Speedit (7.2.6)			

**Figure 7.1 Survey Processes Timeline**

With the process beginning again at the start of every week with a new batch of surveys prepared and then mailed out, it can be seen that significant overlap of tasks occurred. Generally this was not a problem due to the relatively low workload involved (on average, about 37 surveys went out per week, but only about 4 would be returned indicating motorcycle travel was actually undertaken, with the others being non-travellers or non-respondents).

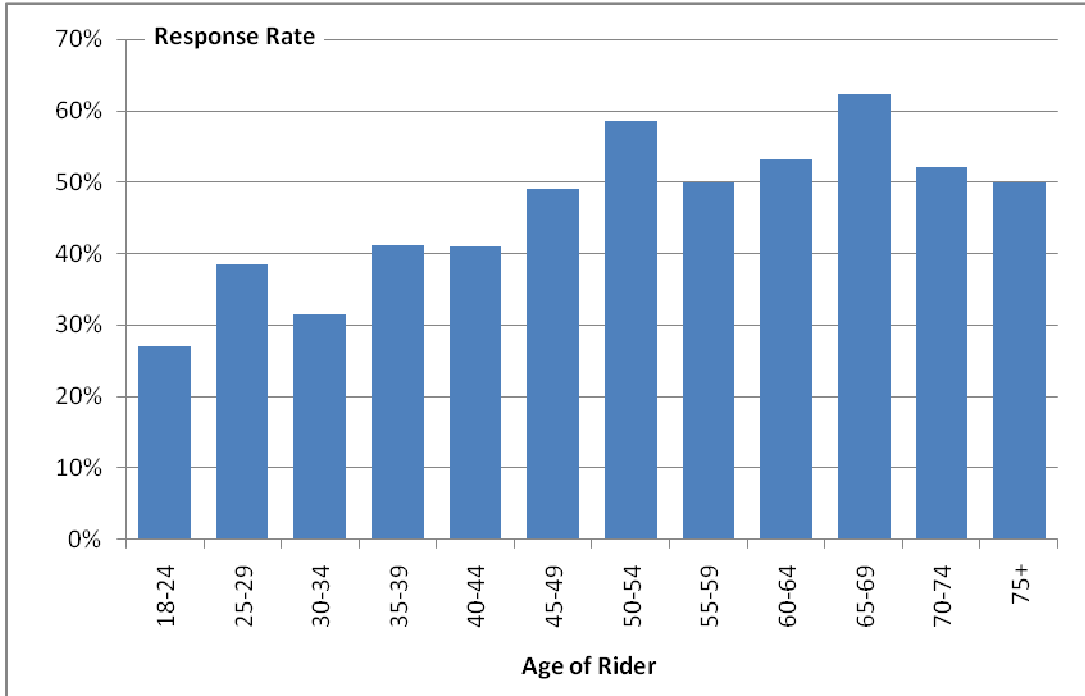
### 7.2.9 Outcomes of the Survey Procedures

As noted earlier, the survey operated by sending a questionnaire to each VISTA07 respondent identified as holding a motorcycle licence, and then having them return the completed questionnaire by mail (after a telephone reminder, if necessary). A total of 1515 questionnaires were dispatched, with 688 responses being obtained. This gave an overall response rate of 45.4%. As shown in Table 7.1, the response rate was not uniform across the Study Area, with a high of 60.6% in the Inner North Melbourne suburbs and a low of 36.7% in Murrindindi.

**Table 7.1 Response Rate by Area of Residence**

Area of Residence	Sample	Responses	Response Rate
Inner West Melbourne	96	41	42.7%
Outer West Melbourne	88	37	42.0%
Inner North Melbourne	99	60	60.6%
Outer North Melbourne	97	47	48.5%
Inner East Melbourne	78	35	44.9%
Outer East Melbourne	135	52	38.5%
Inner South Melbourne	83	42	50.6%
Outer South Melbourne	125	47	37.6%
Geelong	128	62	48.4%
Ballarat	137	58	42.3%
Bendigo	142	70	49.3%
Shepparton	160	74	46.3%
Latrobe Valley	98	45	45.9%
Murrindindi	49	18	36.7%
TOTAL	1515	688	45.4%

At a macro-geographic scale, the response rate from the Melbourne metropolitan area was 45.2%, while it was 45.7% from the regional areas. The response rate was relatively equal by gender (45.4% response from males, and 45.6% response from females), but was biased towards older riders as shown in Figure 7.2, with riders under 45 being under-represented and riders over 45 being over-represented in the respondents.



**Figure 7.2 Response Rate by Age of Rider**

Of the 688 respondents, only 159 (23%) actually rode a motorcycle on at least one day in the 10-day survey period. The number of respondents riding on each of the 10 days of the survey is shown in Table 7.2. Comparing the first three days of the survey with the last three days of the survey (which both relate to Fri-Sun), it appears that there may have been some degree of respondent fatigue over the course of the survey, with consistently fewer reported trips on the second weekend compared to the first weekend (when no logical reason exists for a consistent difference in actual travel behaviour between the two weekends since the survey was a continuous rolling survey).

**Table 7.2 Number of Riders by Day of Survey**

Travel Day	Day of Week	Number Riding
1	Friday	60
2	Saturday	68
3	Sunday	53
4	Monday	64
5	Tuesday	66
6	Wednesday	60
7	Thursday	57
8	Friday	54
9	Saturday	46
10	Sunday	44



The sample frame for the survey was based on those VISTA07 respondents who stated they had a motorcycle licence, even though they may or may not have currently owned a motorcycle. Indeed, only 442 of the 1515 people in the sample frame (29%) stated that they currently owned one or more motorcycles. It might therefore have been expected that those who both had a motorcycle licence and currently owned a motorcycle might have responded more readily to the motorcycle survey, because of the relevance of the survey to their current situation. However, there was only a very small difference in the response rates, with 46.6% of those with a motorcycle responding to the motorcycle survey, compared to 44.9% of those without a motorcycle. The motorcycle survey does not, therefore, appear to be particularly biased towards those owning a motorcycle (as well as being licenced).

In addition to knowing whether those in the sample frame owned a motorcycle, it was also known whether they actually rode a motorcycle on their single VISTA07 Travel Day. Of the 1515 people with a motorcycle licence in the VISTA07 survey, only 95 (6.3%) actually rode a motorcycle on their Travel Day (this is slightly less than the 8.5% who rode a motorcycle on an average day during the 10-day motorcycle survey). However, of those who rode a motorcycle on their VISTA07 Travel Day, only 35.8% responded to the motorcycle survey, compared to 46.1% responding from those who did not ride a motorcycle on their VISTA07 Travel Day. It therefore appears that VISTA07 “non-riders” were more likely to respond to the motorcycle survey than VISTA07 “riders”. Of those respondents who rode on their VISTA07 Travel Day, 91% also rode on at least one of the ten days in the motorcycle survey, whereas of those respondents who did not ride on their VISTA07 Travel Day, only 20% rode on at least one of their 10 motorcycle survey days.

## 8. Data Coding

### 8.1 Initial Office Checking

When the survey returns come back into the Kew Survey Office through the mail, they are unpacked and checked before the questionnaires are sent on to the data entry room for full data processing.

#### 8.1.1 Visual check of returns

The completed returns were first checked for completeness. The main survey form plus the “open comment” form should be present (if the comment form was missing but the main survey form was available, it was entered as usual). If the surveyed person rode during the ten-day period, each of the ten days on the travel diary forms should be accounted for.

At this stage any unused materials (notably comment forms, as the main survey forms were pre-filled with information relating to a given person and dates) were removed from the survey packs, and placed back into the stocks of raw materials for use in a subsequent week.

### 8.2 Coding Method

#### 8.2.1 What physical coding method was used?

The coding method chosen for this survey used a custom-written program, designed and produced by TUTI, for data entry and editing. The program (Speedit – Survey Program for Entry and Editing of Data Involving Travel) is described in more detail in Section 8.5. The program uses screens that are visually similar to the pages of the physical questionnaires, accesses a number of separate databases that are easily updated for different surveys and geographic regions, undertakes geocoding “on-the-fly” using lookup tables, and conducts a wide range of editing cross-checks while the data is being entered. The program is also designed to “write itself” using data drawn from a range of tables describing the coding procedures for any particular survey, which accelerates the process of adapting the program for different surveys while minimising the chance of accidental coding errors when setting up for a new survey..

#### 8.2.2 Why was this coding method used?

The Speedit method was selected for five main reasons:

- The Speedit program has many real-time checks of the data that is inputted, and restricts the data inputted to legitimate and consistent values;
- The Speedit program calculates geocodes as the data is entered, thus enabling a wider range of editing checks at the time of data entry;
- The program is designed for a non-networked environment, providing greater flexibility when working in a temporary field office such as Kew;
- The program outputs data files which are easily input into the analysis process; and
- Date entry staff were already familiar with another version of Speedit being used for the main VISTA07 survey.

## 8.3 Structure of Data Files

### 8.3.1 Person, Vehicle, and Travel Diary files

The various files created for the VISTA07 motorcycle spin-off surveys inherit some characteristics from the main VISTA07 survey, but there are also some differences that will be identified below. Linkages are created by means of ID numbers for each record in each file, which identify a unique relationship with records in the various files.

Each Person belongs to a specific Household. Unlike the main survey, the Vehicles do not belong to a given Household as such, but relate instead to the person who rode them. Each Travel Diary record also belongs to a given Person.

The ID numbers used to link each file have a specific format, as follows:

- Person Records: YyyHrrwwhhPpp, where:
  - yy is the year of the survey (07 for this phase of VISTA, even for surveys conducted during the first half of 2008); and
  - rr is the survey fieldwork region number (from 01 to 20); and
  - ww is the survey week (from 01 to 47); and
  - hh is a household number within that region and week (from 01 to 42); and
  - pp is the person number within each household (from 01 to 05).
- Vehicle Records: YyyHrrwwhhPppVvv, where:
  - vv is the vehicle number linked to each person (from 01 to 05).
- Travel Diary Records: YyyHrrwwhhPppDdd, where:
  - dd is the stop number within each person (from 01 to 10).

## 8.4 Coding Frames

### 8.4.1 Coding frames for each data file

Each data file has a Coding Frame describing the meaning of each variable in the file. The Coding Frames are attached to the data files as a separate worksheet, and are also provided as Appendix E, F and G of this report.

The format of the Coding Frame for each variable is similar, as per the example below:

Variable Name	Variable Meaning
VH_Type	Vehicle Type
Min	1
Max	4
-2	N/A
-1	Missing
1	Motorcycle
2	Scooter
3	Other

The name of each variable in the datafile is given (e.g. VH\_Type) followed by a brief description of the meaning of the variable. For each variable, the range of the variable (especially for

Codes) is given in terms of the minimum and maximum allowable values of the code. The meaning of each of the codes is then provided. As explained in section 9.4.1, missing values were assigned negative numbers as codes (-2 for not applicable and -1 for missing). The code 0 is not used, to avoid issues where an empty field might be mistaken for a zero value. For some variables, negative or zero values have specific meanings: in these cases, the meaning (if any) of the unusual codes is then given, followed by the meanings of the allowable (non-missing) code values.

## 8.5 Data Entry Programs

### 8.5.1 What programs were developed for data entry?

For a previous travel survey conducted in Melbourne in 2005 (MATS), a data entry program was developed by TUTI. This program has been used, and further developed, in several subsequent surveys in Australia and New Zealand, and most recently for the main VISTA07 survey. The Speedit program (Survey Program for Entry and Editing of Data Involving Travel) is an Excel-based program, making extensive use of VBA macros. The latest version developed for the main VISTA07 survey has been designed so that the program writes much of its own code, after looking up key parameters in various data tables describing the survey.

While this motorcycle survey diverts somewhat from the format of those previous household survey projects, much of the Speedit structure can be re-used to ensure a quickly-developed and reliable data entry program that then leads to easier and higher quality data analysis.

The Speedit program uses separate data entry screens for the various components of the survey instrument (Person, Vehicle and Travel Diary forms), drawing upon a variety of Input files, and producing a range of Output files. The screens are generally designed to reflect the layout of the paper questionnaire, as much as possible, to facilitate error-free data entry.

The components of the Speedit program are as follows:

#### INPUTS

- Setup Pages – these pages enable the user to customise aspects of the program for a particular survey, including the name and dates of the survey. It is from these pages that information is obtained by the program which enables it to write the required code for the program.
- Workbook Management – most of the worksheets in the Speedit workbook are hidden from the data entry operator. The Workbook Management worksheet enables specific worksheets to be shown or hidden, as required.
- Sample Data – this page contains the address and demographic data for all persons in the survey sample. This data was an output from the main VISTA07 survey.
- Coding Frames – several pages in the workbook contain the coding frames for the variables in the data entry worksheets.
- Geocoding Files – a central component of Speedit is the ability to perform geocoding of locations “on-the-fly” as the data is entered. Several of the databases pre-assembled to enable geocoding via lookup tables for the main survey were re-used for the motorcycle survey. These databases included:
  - Streets File – a file of 70,000 street names in the Study Areas; and
  - Suburbs File – a file of over 15,000 town names and centroids across Australia; and

- Postcodes file - a file of over 2,400 postcodes and centroids across Australia.

Given the increased file sizes allowed in Excel 2007 (over one million records per sheet), all these databases are easily held within the Speedit workbook itself.

**DATA ENTRY**

**Coverpage Screen** – Starting the Speedit program presents the start-up screen shown in Figure 8.1. The data entry process is started by first entering a Person ID number (PRID). This ID number is checked against the Sample Data to check for its validity, and if successful the household address, coordinates, and relevant resident names are displayed on the Coverpage screen. The program also checks the output file of the external Person Data File to see if data for this person has already been entered, and provides options to the user as to how to proceed based on that.



**Figure 8.1 The Speedit Coverpage Screen**

**Person Form** – Assuming that this is the first data entry for this household, clicking on the large green button in Figure 8.1 will take the user to the Person Form, as shown in Figure 8.2.

**VISTA07 - MOTORCYCLE - PERSON QUESTIONS** Return To... ▾

**PERSON:** 1   to

Contact phone number:

Previously collected: #N/A

Date obtained licence:

Licence held >1 year?

Rode during 10 day period?

Last rode when:   /  /

OR

Number of bikes rode:

[Go To Vehicle Form](#)

**Figure 8.2 The Speedit Person Form Screen**

The Person Form screen presents the questions pertaining mainly to the upper section of the joint Person/Vehicle Form (see Appendix A), in much the same layout. Data can initially be entered by using the drop-down menus for each answer. However, each drop-down menu also has “type-ahead” intelligence and the menu items have been so named that usually just typing the first character of the answer will provide the correct answer. The user can then enter data very quickly using the keyboard and the Tab key to move from question to question. When data entry is completed and the user clicks on the button showing “Go to Vehicle Form” in the above figure, an error-checking routine is run. If any problems are detected, an error message screen appears and allows the user to either correct the errors immediately, or to proceed and address the errors later.

If the person did not use a motorcycle during the survey period, then the survey entry is now over, and if errors or warnings were found with the data entered to date, an Error Form will be displayed. If no errors or warnings have been found, then the CoverPage will be displayed instead, ready for the survey data to be exported to the external data files.

**Vehicle Form** – Assuming the person rode a motorcycle during the survey period, the user will next be taken to the Vehicle Form, as shown in Figure 8.3. This form has space for up to five vehicles, and is laid out in similar format to the paper version of the Vehicle Form. Once again, when data entry is completed and the “Go to Travel Diary Form” button is clicked, an error-checking routine is run before allowing the user to continue.

If an engine size is provided in cubic inches rather than cubic centimetres, a quick converter is provided at the bottom of this screen.

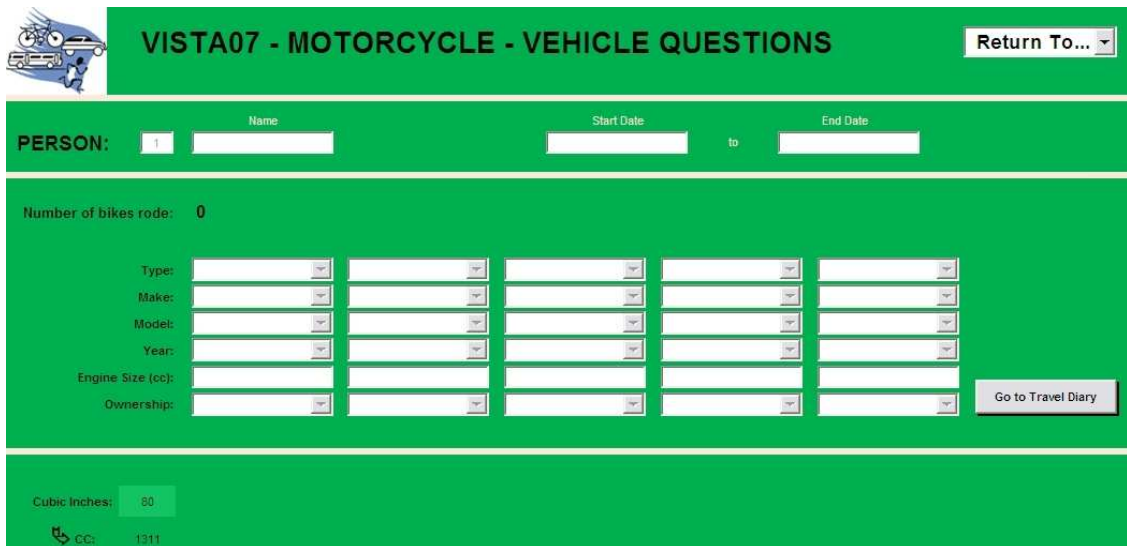


Figure 8.3 The Speedit Vehicle Form Screen

**Travel Diary Form** – Once the data in the Vehicle Form has been accepted, the user will be taken to the Travel Diary Form, as shown in Figure 8.4. This form is based on a single column from the three Travel Diary pages in the survey booklet (see Appendix B) and accepts information about whether the person travelled on the day indicated at the top of the form. Unlike on the previous two forms, the fields on this page are re-used: once the details for survey day one have been entered, the fields empty to allow the entry for the next day. As a substantial portion of the entry will be of commuting behaviour, there is a “Copy Day...” menu at the top right to allow the rapid copying of previous day’s data (which also makes some automatic changes to the odometer readings). A miles-to-kilometres converter is also provided to the right of the screen.

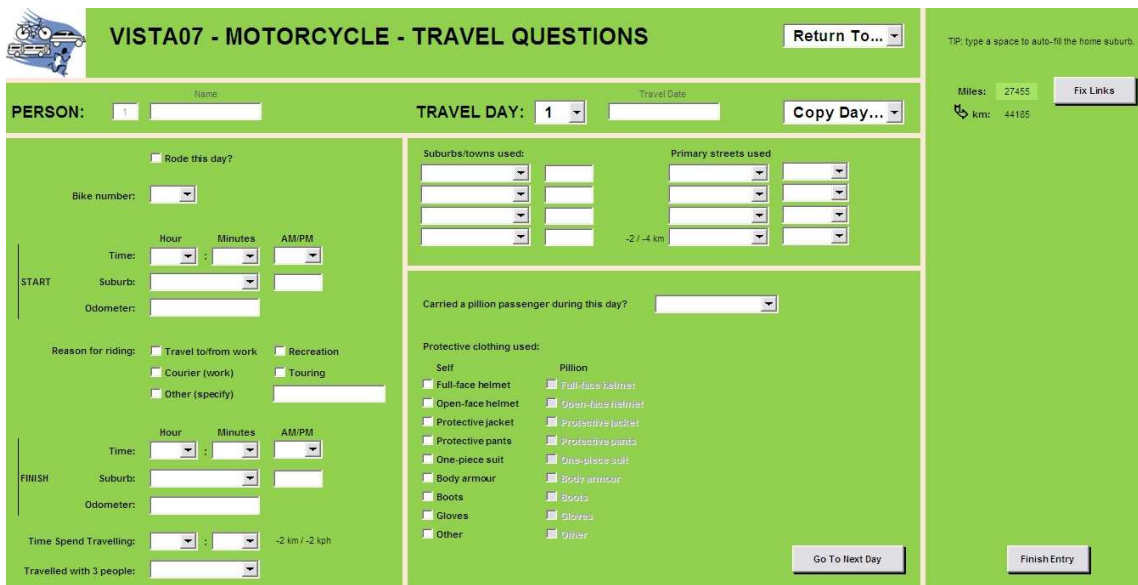


Figure 8.4 The Speedit Travel Diary Form Screen

**OUTPUTS**

The data entered for each household is stored in two formats within Speedit. Firstly, the Raw Data, corresponding exactly to the data entered on the relevant Form (Person, Vehicle, or

Travel Diary, abbreviated to PR, VH and TD respectively), is recorded so that the Form screens can be re-created later by importing the Raw Data from an external file.

Secondly, a file of Processed Data is created as an intermediate step towards producing the final file (as described by the Coding Frame in Appendices E, F & G). The Processed Data sheet also includes derived data and data pulled from different Forms. An example of derived data would be the total distance travelled, which is never explicitly entered but is undeniably useful.

When all data entry and editing has been completed for a given person's survey, the data can be exported to an external data file by clicking on the 'Export/Clear Data' button shown on the Coverage screen in Figure 8.1. This appends a time-stamped copy of the current version of that person's Raw and Processed data into external data files (one each for the Person, Vehicle, and Travel Diary forms). It also clears the internal data worksheets within Speedit, to prepare for data entry of a new survey. If wished, a previously exported survey's data can now be imported into Speedit, to re-commence data entry on it.

When an export is performed, the Error Form is also exported into a folder named 'TAPerrors', which provides a "hard copy" record of the entry process, which is particularly useful when a survey has been entered more than once.

## 8.6 Coding Administration

### 8.6.1 How was coding administered?

All coding of data was administered in the Kew survey office. While the Speedit data entry program has been designed to work on multiple computers at once, with the data combined later, in this case all entry was completed on the one computer by Speedit programmer David J Richardson. This decision was taken due to a recognition that the relatively small number of surveys to be entered (compared to the main VISTA07 project) would best be done by a single person, especially one who was already familiar with this variant of the Speedit program.

The Speedit data entry program and all the input and output data files were programmed or held in Excel 2007 workbooks. At the end of each day involving survey entry, the data from the laptop was copied to a centralised database for backup and increased security. Off-site copies of this database were also made on at least a weekly basis.

### 8.6.2 Geocoding

This survey asked for the suburbs or towns that were visited (including the start and end suburb) during each day, and also for up to four of the primary streets used during these days. To allow accurate entry of this data, and to check that it made logical sense, a reduced version of the geocoding data and algorithms were adapted from the main VISTA07 Speedit program.

In particular, geocoding was used on the fly to ensure that reported odometer readings were consistent with the reported suburbs visited. While this was generally taken from the relatively imprecise suburb centroids, at least for the home locations we already had a precise longitude and latitude (though that precise location is randomised in the final data set, for privacy reasons, as will be described in Section 9.6).



### **8.6.3 Clarification Calls**

Any unresolved issues (missing data or inconsistent information which had failed the range and logic editing checks identified in section 9.2) were flagged and the household was scheduled for a Clarification Call (if a phone number was available, which it was for over 99% of cases).

Households were then phoned and clarification interviewers asked questions in a bid to resolve the outstanding issues. Any new information was then entered using the Speedit program.

### **8.6.4 Data Validation**

Once the data entry, editing and clarification had been completed by the original data enterer, a small sample of the questionnaires and the output data for their persons were passed on to the Senior Data Supervisor (Mr Amyrn Simmons) for Data Validation. In this process, the data in the output file was checked against the original questionnaire. Any discrepancies were brought to the attention of the original data enterer, who then corrected the data. This had the effect of both cleaning the data and also educating the data enterer, so that less and less needed to be brought to their attention as the survey progressed.

As the bulk of the surveys were of the “have not ridden for some years” type, and few apparent errors were made by the respondents when completing the surveys, and any inconsistencies between different data entry staff was eliminated due to the one person (the programmer and eventual analyst) entering all the data, there were very few issues identified by the data validation process.

## 9. Data Editing

Data editing took place at two levels. Firstly, when the data was entered into Speedit, automatic error-checking routines were run within Speedit to detect errors and inconsistencies. These were then either resolved immediately before leaving that data entry screen, or resolved later after Clarification Calls were completed. Some of these errors were also resolved at the Data Validation stage.

A second major data editing was performed after the data had been extracted and was being prepared for data release. This higher-level editing usually concentrated on relationships between variables which only became apparent when the data set was considered in aggregate.

The following comments on data editing generally apply to both types of editing, unless specified otherwise.

### 9.1 Data Editing Programs

#### 9.1.1 What data editing programs were written?

The Speedit computer program developed by TUTI for data entry for VISTA07 was also used for data editing. In addition, in the final editing, substantial use was made of PivotTables in Excel, within an overall process for data editing.

The data output files extracted from Speedit were used in a data editing process consisting of several steps. Each type of output (Person, Vehicle and Travel Diary data) was contained in a workbook consisting of the following worksheets:

- Raw Data from Speedit
- Processed Data from Speedit
- A “tidied up” copy of the processed data
- Frequency Tables
- Coding Frame
- Imputation rules

The Raw Data file was used as the ultimate arbiter, since it was the most original and least processed copy of the data input into Speedit. If there were any inconsistencies or errors in the data transformations, then the Raw Data was used as the most accurate copy of the data (or, if needed, the original survey form was consulted). Unfortunately, the Raw Data variables were all in Text format and hence unsuitable for data analysis (which is one reason why the Processed Data is more useful in the longer term).

The Processed Data, as it was output from Speedit, was the main data file used for editing purposes. However, a linked copy of this worksheet was also made on another sheet, because more transformations were usually required in transferring the data between the worksheets to obtain the final version of the processed data.

The Frequency Tables worksheet was created from PivotTables based on the data in the Linked Copy of the Processed Data. The Coding Frame was included in another worksheet,

and this was used to create labels for the Frequency Tables. Finally, the rules used for Imputation of missing values were summarised on another worksheet.

## **9.2 Consistency and Range Checks**

Once the survey data had been entered into Speedit, a series of editing checks were undertaken to identify data requiring clarification. In most surveys, two type of editing check are required; Range checks and Logic checks. Range checks are used to identify any values that lie outside the permissible range for variables. The need for range checks is greatly reduced in this survey because of the dropdown menus used for the closed questions, which eliminates typing errors that are the usual cause of range errors. The permissible ranges for all variables are included in the coding frames attached as Appendices E, F and G.

The second type of editing checks are Logic checks, wherein inconsistencies are detected between the values entered for different variables. Logic checks are cross-tabulation checks, sometimes within one file and sometimes across more than one file. They compare values obtained for one variable with values obtained for other (related) variables, to determine the consistency of the data obtained for each of the variables. These checks can result in two types of outcome: an error, which indicates that one or more of the variables is definitely in error and must be corrected; or a warning, which indicates that one or more of the variables may be in error and may need to be corrected (however, it may also be the case that the situation detected is just unusual, and needs no correction). The scope of Logic checks is virtually unlimited, since “everything relates to everything else”. While many logic check errors were picked up before the Clarification Calls, many more have been discovered since then (and corrected in the final data set). More may be discovered in the future as users of the data perform a wide variety of analyses which highlight inconsistencies previously not seen in the data.

The Logic checks performed before Clarification Calls were made are attached as Appendix H.

## **9.3 Converting Unstructured Responses to Categories**

Most questions in the self-completion questionnaires were designed such that they could be answered by simply ticking a box, and hence these could be converted simply in the data entry program into drop-down menus. However, for some questions, there were too many possible answers to cover with pre-defined answer categories. In such cases, they were either asked as totally open questions (e.g. vehicle make and model) or else answer categories were provided for the most frequently used answers to elaborate in cases where it would assist the respondents to understand the type of response required (e.g. by giving the response “Travel to/from work” on the Travel Diary page to give an indication of the level of detail required) with an open category at the bottom of the answer categories. The main questions where unstructured responses had to be converted to categories are described below.

### **9.3.1 Vehicle Make and Model**

The make and model questions for the vehicle ridden were left open, but a very substantial list of the two types were created for the Speedit program, and are listed in Appendix F. The make list is historically extremely complete (probably too much so!), with nearly 400 makes listed. The model list, however, focuses primarily on major makes (or those rarer ones that were encountered during the survey process), and therefore only a little over 1300 models are listed. All vehicles encountered during the survey are included in the make and model lists.

### 9.3.2 Reason for Travelling

For each day that a motorcycle was ridden, the reasons for travelling were queried. While the range of possible answers is potentially very wide, experience in previous surveys had shown that they could be generally classified using a limited number of categories (commuting, recreation, courier tasks, and touring being the options provided as tick boxes). There was also an 'Other purpose' box left for open entry. With one person doing all entry, it was reasonably easy to consistently categorise the many possible entries here: 'shopping' of various types contributing over half the responses here. After the survey data entry was finished, and the data was being edited, the 'Other purpose' categories were further rationalised and provided a code (see Appendix G).

## 9.4 Missing Data

### 9.4.1 How was missing data coded?

Despite the best attempts at imputation (see section 9.5), there may still be some missing data in the final data set. It was important, therefore, that missing data be clearly identified. As noted above in section 8.4.1, two types of missing data may appear in the data files:

Code	Type of Missing Data
-2	N/A
-1	Missing

The Not Applicable value of -2 is a value that is used when no data exists for that variable, and none is meant to exist. A good example of this situation is where the person did not ride during the survey period – it is therefore not possible to answer the vehicle questions, for example.

The Missing Data value of -1 is a value that is used when no data exists for that variable, and some data is meant to exist. This is the only true case of "missing data". For most variables, missing data has been imputed, as described below in Section 9.5.

### 9.4.2 How was missing data reported?

Missing data can be reported in one of two ways. Firstly, the number and percentage of data that is missing can be reported in tables to illustrate the extent of missing data. Secondly, especially when the percentage of missing data is low, the missing data can be entirely removed, with percentages calculated from only the "non-missing" data.

In this survey, substantially less than 1% of returned survey forms were not entered into the data. Clarification calls, in particular, helped to greatly minimise the number of surveys that were fundamentally illogical, or insufficiently complete, and thus could not be entered.

## 9.5 Imputation of missing data

### 9.5.1 What procedures were used for imputation of missing data?

Where possible, imputation was avoided by actually obtaining missing data from respondents during the Clarification Calls. However, some degree of imputation was still necessary in the final data editing stage in order to maximise the usefulness of the data sets. Two types of imputation were undertaken.

Firstly, in the Travel Diary file, missing travel diary values were imputed where the values of these stops was clear from other travel diary data provided on that survey. Most commonly this

would include respondents growing tired of completing each day's data if they were a regular commuter, or failing to include an odometer value on a single day or always failing to provide the end odometer value (which could usually be taken from the starting odometer value for the next day travelled).

The second type of imputation applied to individual values of variables in the person, vehicle and travel diary files. Such imputation deals with item non-response by estimating values for the missing data based on some other source of information. This method has the advantage that all data in the existing data set is used (i.e. no data is discarded), the imputation is done only once (compared to the multiple re-calculations of weights using the re-weighting method), and a clean data matrix is obtained for future analysis. For these reasons, imputation is the preferred method of dealing with item non-response (INR). There are several methods of INR imputation commonly used in travel surveys:

### **Deductive Imputation**

This method allows a missing value to be replaced by a perfect prediction, based on a logical conclusion drawn from other data in the data set. This is often the case when redundant questions are asked in a survey, where missing responses to one question can be replaced by information derived from the other redundant questions.

### **Overall Mean Imputation**

In this method, the missing value is replaced by the mean of that variable across all respondents in the sample. For example, a missing income would be replaced by the mean income of the respondents in the sample. This can be a dangerous method, unless the extent of item non-response is very small, because the method leads to reduced estimates of the variance (because all the imputed values are at the mean of the distribution) and hence invalid confidence intervals.

### **Class Mean Imputation**

This method overcomes some of the problems of Overall Mean Imputation by first dividing the sample population into strata, based on other variables in the data set, and then calculating the mean of the variable to be imputed within each stratum. The observation requiring imputation is then assigned to one of these strata, based on its values of the stratifying variables, and the mean of the variable within the stratum is assigned to the missing value. There will still be some reduction in variance using this method, but far less than would have occurred using Overall Mean Imputation.

### **Hot-Deck Imputation**

In hot-deck imputation, missing responses are obtained by finding a record within the data set that is similar in all respects to the record with the missing value. The value of the variable (e.g. income) for this record is then substituted for the missing value. A variety of hot-decking procedures have been proposed including random overall hot-deck imputation (whereby a set of records with similar characteristics are formed, and the value to be imputed is obtained by random sampling from this set), random imputation within classes, sequential hot-deck imputation (where imputed values are obtained from the set of records by selecting each record in sequence) and hierarchical hot-deck imputation (where a set of records is developed with exact or non-exact matches to the target record, and then the better matches are used preferentially as the source of imputed data).

### Cold-Deck Imputation

Whereas hot-deck imputation uses information from the data set of the current survey, cold-deck imputation uses data from sources other than the current survey. In most other respects, cold-deck imputation is very similar to hot-deck imputation.

### Regression Imputation

In this method, a regression equation is estimated from the data set and then used to predict the variable to be imputed from other variables within the data set. This method is useful when the use of Class Mean imputation stratification may result in a large number of empty cells within the stratification. Regression imputation allows these cells to be filled with information from neighbouring cells.

### Stochastic Regression Imputation

In this method, a regression equation is first estimated from the data set. However, rather than imputing the mean value estimated by this regression equation, a value is probabilistically sampled from a distribution around this mean value. Such a technique preserves the mean and the variance of the original distribution.

### Multiple Imputation

In all the above methods, a single value of the imputed variable is obtained and substituted into the data matrix. With multiple imputation, a number of different values are imputed to create a number of "clean data matrices", which are then analysed as different representations of the complete data set.

For the VISTA07 motorcycle survey, the primary means of INR imputation employed are deductive imputation and hot-deck imputation. Appendix G gives a complete list of the imputation methods used for each variable (where applicable) in the various files.

The hot-deck imputation method is very suited to spreadsheet analysis, as explained below for hot-deck imputation of missing year of birth in the main VISTA07 survey. An analysis of the data shows that year of birth is related to the gender and region of the respondent. By using both of these factors, rather than simply taking an average year of birth, a more representative year of birth is likely to be found.

The hot-deck imputation method in this case would proceed as follows:

- Each record in the Person data set is first assigned a random number.
- All missing records are assigned a unique value (viz. -1)
- The Person records would be sorted by Gender, Region, and the Random Number field.
- If the original value is not missing, then the imputed value is naturally equal to the original value.
- If the original value is missing, however, the imputed value for that record is set equal to the original value of Year of Birth for the record immediately above (which will have a Gender and Region very similar to that of the record being imputed).

This process is applied to all variables for which imputed values are required. The only difference is in the third step, where the sorting variables are selected for the variable being imputed. These sorting variables should have been shown to be statistically related to the variable being imputed, of course.

## 9.6 Confidentialisation of Data

### 9.6.1 Why confidentialise the data?

To maintain the confidentiality of the respondents, any data released from the survey was required to have the residential addresses of the responding households removed so that they could no longer be uniquely identified with the travel and activity data they provided. To do this, it is necessary to not only remove the residential address fields, but also to randomise the household geocodes. It was important, however, to use the actual geocodes of the household to calculate any derived variables before randomising them. For example, the CCD and Traffic Zone of the household should be based on the real geocodes, not the randomised geocodes, as should any distance calculations based on the location of the household.

### 9.6.2 How were household address geocodes randomised?

A very simple way of randomising the geocodes is to simply change the geocodes by a random amount (up to a specified maximum) in a random direction. This was done in the main VISTA07 survey, and now this follow-up survey, by adding a random (positive or negative) amount to the longitude and latitude of the household, up to a maximum value of +/- 0.0005.

The majority of household locations were shifted between 20 and 60 metres (in a random direction), with a maximum shift of about 70 metres. Even though some of the locations have not been shifted very much (less than 20 metres), it is unknown which of the locations have been shifted by a large amount, and which have been shifted by a small amount. Therefore, their confidentiality is preserved.

In the cases where more than one person from a given household was surveyed, the randomised geocodes are shared between the people. Providing two or more geocodes would have allowed easier identification of the household in question.

## 10. Data Weighting and Expansion

### 10.1 Editing Check Corrections

#### 10.1.1 What final editing was performed on the data?

Once the data had been clarified with respondents and these clarifications had been entered into the data set, the records were flagged as ready for extraction for final editing and analysis. At this stage, there were still many editing checks that had to be run with the data to supply missing values (imputation) and to rectify inconsistencies in the data. As various users analyse the data in many different ways in the future, further minor inconsistencies may be identified as users look at the data in ways not previously encountered.

### 10.2 Secondary Data Comparisons

#### 10.2.1 What secondary data was used for sample expansion?

The main secondary data used for sample expansion purposes in VISTA07 was the 2006 ABS Census, as obtained from the ABS website ([www.censusdata.abs.gov.au](http://www.censusdata.abs.gov.au)).

To overcome problems with the profile of licenced riders responding to this follow-up survey, motorcycle travel recorded in the main VISTA07 survey was also used as a “control” to establish response weights for the motorcycle survey.

#### 10.2.2 What variables were used for sample expansion?

For discussion of how the ABS Census data was used in expansion of the VISTA07 data, please refer to the main VISTA07 survey report. The person weights identified for that survey (which incorporate the temporal and household weights) were carried over for use in this follow-up survey.

Two goals were kept in mind when expanding/weighting the motorcycle survey data to the main VISTA07 survey data. First, there was a desire to keep the motorcycle-licenced population demographically consistent between the two surveys, and second to identify and adjust for any response bias in the follow-up motorcycle survey.

While nearly 35,000 people from the main survey were checked for motorcycle licences, the number of people with them was much smaller (1515), and less than half of those (688) responded to the motorcycle survey. This made weighting of the motorcycle survey somewhat more problematic than in the main VISTA07 survey, due to the relatively low number of riders and days involving motorcycle use.

Weighting and expansion was performed at two levels; the data was expanded to the VISTA07 totals at the person level, and then the data was re-weighted at the travel diary level to account for internal biases in the data. In choosing the number and type of variables used for expansion and weighting purposes, it is necessary to make some trade-offs. While it would be desirable to expand on as many variables as possible (thus ensuring that the expanded data is representative of the population in many different dimensions), there is a limit as to how many variables (and levels of those variables) can and should be used, based on:



- The availability of these variables in the secondary data
  - The variables used for expansion must be in a similar format in both the sample data and in the secondary data set.
- The sample size and distributions of variables in the sample
  - With relatively small samples, as in the motorcycle survey, it quickly becomes a problem avoiding zero-frequency cells in the data as it is cross-tabulated across several variables with a large number of categories in each variable, especially if the cross-tabs are done for separate geographic regions. Zero-frequency cells are a problem in sample expansion, because a zero-frequency cell remains a zero-frequency cell no matter how much it is expanded. Therefore, a limited number of variables and categories are required in order to minimise the number of zero-frequency cells in the sample data.
- The deviation of the unweighted data from the secondary control data
  - The purpose of sample expansion is twofold. Firstly, it increases the apparent size of the data set so that it matches the population (e.g. a sample of 668 persons in the motorcycle survey sample is expanded to represent the (approximately) 4,000,000 persons in the VISTA07 study area). Secondly, it corrects for any biases (intentional or otherwise) in the sample data, e.g. if young people are under-represented in the sample data, they can be over-weighted so that the correct proportion appears in the expanded population data. For the first purpose, expansion factors can be based on virtually any available demographic variables in both data sets. For the second purpose, it makes more sense to use variables which have exhibited differences between the sample data and the secondary data sets.
- The relative importance of the variables
  - It is more important that some variables are correct in the expanded data set than other variables. This depends on what the final data set will be used for, and what other data sets the expanded data might be compared against. In the context of a travel survey, demographic variables that are more likely to influence the amount or type of travel should be used in preference to those variables that are relatively unrelated to travel patterns.

In an effort to detect differences in composition between the sample and secondary data sets, some previously reported analysis of response rates and other factors (Section 7.2.9) identified a number of results, namely:

- There was no significant difference in response rates between Metropolitan Melbourne (45.2%) and Regional areas (45.7%)
- There was no significant difference in response rates between males (45.4%) and females (45.6%)
- There was a small difference in response rates between those owning a motorcycle (46.6%) and those not owning a motorcycle (44.9%)
- There was a significant difference in response rates between those aged less than 45 (37.8%) and those aged 45 and above (45.3%)

- There was a significant difference in response rates between those who rode a motorcycle on their VISTA07 Travel Day (35.8%) and those who did not ride a motorcycle on their VISTA07 Travel Day (46.1%)
- There was a difference in representation of the days of the week in the sample data, with two Fridays, Saturdays and Sundays being in the sample data
- However, the second set of Friday, Saturday and Sunday data does not appear to have elicited the same extent of travel reporting as the first set of Friday, Saturday and Sunday data, probably due to a survey fatigue effect in the respondents

The demographic weighting at the person level was therefore reduced to the following factors:

- age group (two groups: less than 45, 45+); and
- VISTA07 motorcycle riding (two groups: did ride, did not ride).

By using the person weights previously identified during the main VISTA07 survey, and then applying the demographic weight as above to ensure the motorcycle survey respondents closely matched that of the main survey, a close approximation of the actual motorcycle-licensed population throughout the survey area can be obtained.

In addition to obtaining a representative expanded population, there was also a need to ensure that the travel reported in the motorcycle survey was also representative and free of bias. The design of the survey had ensured that there was a definite bias by day of week, because the ten Travel Days included two Fridays, Saturdays and Sundays. However, the second set of Friday, Saturday and Sunday data does not appear to have elicited the same extent of travel reporting as the first set of Friday, Saturday and Sunday data, probably due to a survey fatigue effect in the respondents. This over-representation of Friday, Saturday and Sunday travel (but under-reporting of travel on the second set of these days) was allowed for by the calculation and application of a DOW Weight at the level of the Travel Diary file.

After the above adjustments, there remain some differences in travel reporting between the two surveys, in that the follow-up motorcycle survey people travelled more often (6.3% of licenced riders in the VISTA07 survey and 8.5% in the motorcycle survey rode a motorcycle on an average day) but slightly less per day (52km/day in VISTA07 for those who rode, and 47 km/day in the motorcycle survey for those who rode during the survey period). The difference in the proportion riding might be explained by the fact that those who rode during the motorcycle survey period were more likely to respond because they saw the surveys as being more relevant. The difference in distance ridden suggests that those who rode at all in the motorcycle survey tended to ride less per day on average. However, it must be remembered that the two surveys use substantially different methods for calculating distance travelled. In the VISTA07 survey, respondents state where they travelled to on each stage of a trip, and then these destination points are geocoded. It is then assumed that the rider goes in a relatively direct route from point to point, with the distance between points estimated as a multiple of the straight-line distance (where the multiplier is in the range of 140%). The distance travelled per day by motorcycle is then calculated by summing the trip distances for all motorcycle trips. In the motorcycle survey, the distance travelled per day is calculated by the difference in odometer readings for the motorcycle at the start and end of each day. While this measure is coarser and doesn't get distances for each component of the daily motorcycle travel, it is probably more accurate (and self-correcting over several days) since it measures the actual kilometres travelled including any substantial deviations from a direct route, as might often occur with motorcycle touring where getting to the destination in the shortest distance is not the objective

of the trip. The VISTA07 distance also refers to distance travelled as a motorcycle rider per person who rode a motorcycle, whereas the motorcycle survey refers to distance travelled by the motorcycle provided it was used by the respondent on that day.

However, the proportions riding and the distances travelled per day are similar enough to not be major concerns, given the relatively small sample sizes involved, especially for the VISTA07 sample, and hence no further weights are calculated to correct for these differences.

### 10.2.3 How were expansion factors calculated?

Again, for discussion of how the ABS Census data was used to calculate the expansion weights in the VISTA07 survey, please refer to the main VISTA07 survey report.

The demographic weights were calculated by comparing the motorcycle survey sample data with the VISTA07 control data. Table 10.1 shows the number of respondents in the VISTA07 control data as a function of their age and whether they rode a motorcycle in the VISTA07 data, while Table 10.2 shows the same data for the respondents to the motorcycle survey..

**Table 10.1 VISTA07 data showing Age and Motorcycle Riding in VISTA07**

Rode Bike in 07	Under 45	45 or Over	Total
Yes	44	51	95
No	707	713	1420
Total	751	764	1515

**Table 10.2 Motorcycle Survey data showing Age and Motorcycle Riding in VISTA07**

Rode Bike in 07	Under 45	45 or Over	Total
Yes	8	26	34
No	276	378	654
Total	284	404	688

Dividing Table 10.1 by Table 10.2 gives the expansion weights that must be applied to the motorcycle survey data to obtain the same distribution as in the VISTA07 control data, as shown in Table 10.3.

**Table 10.3 Expansion Weights as function of Age and Motorcycle Riding in VISTA07**

Rode Bike in 07	Under 45	45 or Over
Yes	5.50	1.96
No	2.56	1.89

The Day-of-Week Weights were calculated by considering how many times each day of the week was represented in the motorcycle survey period, and then making an explicit adjustment for the under-reporting on the second weekend, as shown in Table 10.4

**Table 10.4 Expansion Weights as function of Age and Motorcycle Riding in VISTA07**

Travel Day	# Riding Motorcycle	DOW Weight
1	60	0.50
2	68	0.50
3	53	0.50
4	64	1
5	66	1
6	60	1
7	57	1
8	54	0.56
9	46	0.74
10	44	0.60

Thus days 4-7 (Monday through Thursday) received a DOW Weight of 1.0 because each of these days was represented only once in the motorcycle survey period. Days 1-2 (the first set of Friday through Sunday) received a weight of 0.50 because those days were represented twice in the survey period. Days 8-10 (the second set of Friday through Sunday) received a base weight of 0.50 which was then modified to reflect the different trip reporting at the start and end of the reporting period (e.g. day 8 receives a weight of  $0.50 \times 60/54 = 0.56$ ) to compensate for the under-reporting at the end of the survey period.

**10.2.4 How were expansion factors applied to the sample data?**

All the weights derived above are multiplicative weights. The InitialPersonWeight (from the VISTA07 survey), the RAweight (Region-Age weight, to correct for response differences to the Motorcycle survey) and the DayWeight (to correct for the repetition of Friday, Saturday and Sunday and the lower reporting on the second weekend) all need to be multiplied to obtain the final weights for each Person, Vehicle and Travel Day.

**10.3 Corrections for Internal Biases**

No internal biases were identified or treated during this follow-up survey. The primary issues that affected the main VISTA07 survey (non-reported stops and proxy completion) did not apply in this case. As we asked for odometer readings on a daily basis, the survey was largely self-correcting for missed or incorrectly reported travel days, as a missing or incorrect value was usually obviously correctable using adjacent values. The surveys were also addressed to, and almost entirely completed by, the relevant person, and not by another household member.

However, given that we calculated some weights using data from the original VISTA07 survey, any previously identified biases identified in the corresponding report for that survey should be noted.

## 11. Data Analysis and Management

### 11.1 Exploratory Data Analysis

#### 11.1.1 What exploratory data analysis methods were used?

In the data editing and cleaning phase of the project, extensive use was made of Excel spreadsheets, Pivot Tables and Visual Basic macros within Excel. While other statistical or database software (such as SPSS or Microsoft Access) could have been used, it was found that the flexibility offered by Excel was a decided advantage, especially considering the expanded size of the data files that can be handled by Excel 2007 (up to 1 million records in a single worksheet, though this follow-up survey did not require anywhere near as many as that).

### 11.2 Modelling

#### 11.2.1 Were any models developed from the data in this project?

No models have been developed so far with the data, with the exception of some simple models developed as part of the imputation process for the purposes of predicting the likely values of missing variables.

### 11.3 Interpretation of Results

#### 11.3.1 What limitations apply to the data?

As always, even though the data is from a substantial sample of about 10000 households in metropolitan Melbourne and 5000 households in regional Victoria, care should be taken when reporting analyses undertaken with significant segmentation of the data, since the sample sizes within some strata may be relatively low. This will also apply, perhaps to a greater degree, for the regional cities, which have one region in total, compared to the eight for Melbourne. One also needs to recognise that very few of the 15000 households in the original VISTA07 data actually had residents with motorcycle licences, thus enabling them to qualify for the follow-up motorcycle survey.

#### 11.3.2 How are sampling errors explained?

As noted in the final limitation noted above, care should be taken when reporting results within strata of the sample. As well as providing the mean result (or any other summary statistic), confidence limits and levels of confidence should also be provided for the summary statistics. As a first approximation, it could be assumed that the sample is a simple random sample from the population, and the Standard Error of the Mean could be calculated as the Standard Deviation of the strata distribution divided by the square root of the sample size for the strata. More precise estimates of the Standard Error of the Mean (or the Standard Error of any other summary statistic) should be obtained using one of the methods of re-sampling described in section 4.7 (given that the sample is actually a clustered, multi-stage sample with differential expansion weights, rather than a simple random sample with uniform expansion weights).

When expressing the amount of sampling error involved in an estimate, preference should be given to a plain-English explanation such as “the mean of this variable is expected to lie between  $x$  and  $y$  in  $z\%$  of repeated samples of this size”.

## 11.4 Database Management

### 11.4.1 What is the structure of the data files?

The motorcycle follow-up survey data files, as provided to the Department of Transport, are in the form of a number of Excel files. They can, however, easily be imported into other software packages such as Access and SPSS. The files received by the Department of Transport exclude the Admin file and have had respondent household address geocodes randomised as described in section 9.6.

### 11.4.2 What are the relationships between data files?

The various files created are linked together as described earlier, in section 8.3.

The ID numbers used to link each file have a specific format, as follows:

- Person Records: YyyHrrwwhhPpp, where:
  - yy is the year of the survey (07 for this phase of VISTA, even for surveys conducted during the first half of 2008); and
  - rr is the survey fieldwork region number (from 01 to 20); and
  - ww is the survey week (from 01 to 47); and
  - hh is a household number within that region and week (from 01 to 42); and
  - pp is the person number within each household (from 01 to 05).
- Vehicle Records: YyyHrrwwhhPppVvv, where:
  - vv is the vehicle number linked to each person (from 01 to 05).
- Travel Diary Records: YyyHrrwwhhPppDdd, where:
  - dd is the stop number within each person (from 01 to 10).

### 11.4.3 Have any new data files been created from the original data files?

No new data files were created, but the original files gained a number of additional fields (columns) only after data entry had been completed. The values in these fields were derivative ones. For example, initially the Person file did not include an explicit record of how long ago the person last rode. The date the person last rode was recorded, as was the current date, but the difference between the two was not explicitly listed. By adding a field for this, and calculating the answer from the two original fields, analysis at a later stage was made easier.

## 11.5 Data Support Services

### 11.5.1 What ongoing support is available to users?

The editing of the data and the development of supplementary data sets based on the original data is an ongoing process. As different users perform various analyses using the data, they may discover inconsistencies in the data that had not previously been recognised. In addition, new uses of the data may require specialised analysis and transformations of the data which require a deep understanding of the nature and structure of the data sets. For this reason, ongoing support is required to ensure consistent development and use of the data.

### **11.5.2 Where is this support available from?**

Following completion of the current project, the data sets will reside with the Victorian Department of Transport. The primary contact within the Department is the Manager - Transport Modelling & Analysis ([vista@transport.vic.gov.au](mailto:vista@transport.vic.gov.au)). For access to the data and general questions about the data sets, the Department of Transport should be the first point of contact.

However, The Urban Transport Institute has an ongoing commitment beyond the current contract to the maintenance of quality in the data, and will be available for consultation on various aspects of the data. The primary contact person within TUTI will be Dr. Tony Richardson ([tony.richardson@tuti.com.au](mailto:tony.richardson@tuti.com.au)).

## 12. Presentation of Results

### 12.1 What reports and documentation have been produced?

During the course of the VISTA07 project, a range of reports have been produced. Several of these have now been incorporated into and updated within the current document. However, to understand the method by which the sample for this survey was generated, and the weightings derived for it, please refer to the 'Victorian Integrated Survey of Travel and Activity 2007: Survey Procedures and Documentation' report, by The Urban Transport Institute and I-view Pty Ltd, the final version of which was produced in February 2009.



## 13. Tidying-Up

### 13.1 How has the data been stored electronically?

The data sets are stored by TUTI as Excel spreadsheets, with coding frames included. These data sets are backed-up on external hard disks, CDs and DVDs.

### 13.2 How have the coding frames been stored electronically?

The coding frames are included as an appendix to this report, and are also stored as a worksheet within the Excel data file spreadsheets.

### 13.3 How has the survey documentation been stored electronically?

This report, along with other survey reports, has been saved on the CDs and DVDs which contain the data sets.

### 13.4 Are MetaData files available for this data set?

Metadata files are defined as “data about the data”. Some also refer to metadata as simply survey documentation. To that extent, the current document is a very comprehensive metadata document. A summary of the survey metadata appears below.

<b>Survey Name:</b>	Victorian Integrated Survey of Travel and Activity 2007 (VISTA07) Motorcycle Follow-up Survey
<b>Description:</b>	A survey of day-to-day travel using motorcycles by motorcycle-licenced persons living in a sample of private dwellings in the Melbourne Statistical Division, and in five Regional City LGAs. Also includes some household, person and vehicle characteristics.
<b>Subject:</b>	Motorcycle; Scooter; Road; Private vehicle; Licencing; Commercial; Recreational; Urban; Vehicle stocks; Vehicle flows; Travel speed; Access; User cost; Protective Clothing; Pillion Passengers
<b>Coverage:</b>	Melbourne Statistical Division (MSD), Geelong LGA, Ballarat LGA, Bendigo LGA, Shepparton LGA, Latrobe Valley LGA
<b>Client:</b>	Victorian Department of Transport (previously Department of Infrastructure)
<b>Client Project Manager:</b>	Manager - Transport Modelling & Analysis (vista@transport.vic.gov.au)
<b>Contractor:</b>	The Urban Transport Institute (TUTI)
<b>Contractor Project Manager:</b>	Dr. Tony Richardson (tony.richardson@tuti.com.au)
<b>Sub-contractors:</b>	I-view Pty Ltd (field operations)
<b>Project Duration:</b>	October 2006 – September 2008
<b>Pilot Survey:</b>	None; in some senses this project was a pilot itself.
<b>Main Survey Duration:</b>	24 August 2007 - 22 June 2008
<b>Target Sample Size:</b>	Not strictly defined: suggested sample size was 400 surveys, or 100 persons travelling in returned surveys
<b>Actual Sample Size (for Data Release 1.0):</b>	1548 surveys sent, 688 surveys returned, 159 persons travelling on 572 days
<b>Response Rate:</b>	44%
<b>Sample Frame:</b>	All motorcycle-licenced persons identified by the VISTA07 main survey, up to data extraction 9 (of 11 total)

<b>Sampling Method:</b>	All of the sample frame was surveyed.
<b>Survey Methodology:</b>	Self-completion questionnaires with ten-day travel diaries; Pre-contact Letter of Introduction from Client; Mail Delivery of Questionnaires; Motivational Phone call on evening before travel day; Reply-paid envelope for return of Questionnaires; Reminder Phone Call after one week; and Reminder Letter for those not contactable by phone.
<b>Data Processing:</b>	Field Office visual check of returns; Data Entry/Editing using Speedit program; Geocoding of some data; and Clarification Calls to households to clarify information.
<b>Final Editing and Analysis:</b>	Extensive Range and Logic Checks; Imputation of Missing Data; Household Expansion Weights (based on dwelling type and ownership and region of residence) using ABS 2006 Census as control data; Temporal Weights based on day-of-week and month-of-year of Travel Day; Person Expansion Weights (based on age, gender and region of residence) using ABS 2006 Census as control data; Days and Distance Weights (based on information collected in the main VISTA07 survey)

# Appendix A: Person and Vehicle Form

Note that some data (name, dates, person ID, and the like) were over-printed on the surveys.

## A Survey of Motorcycle and Scooter Rider Travel

conducted for the Department of Infrastructure and VicRoads  
by The Urban Transport Institute

In Confidence
 Read this First

1. If your household has received more than one survey, please complete the one with your name on it.
2. We have printed some of the responses you gave us to the Survey of Day-to-Day Travel below to save you time.
3. Please fill in this front page first.
4. Then... fill in the Travel Pages on the inside and the back page of this form.
5. If you have any comments about motorcycle or scooter riding, please write them on the separate sheet inside.

**First Name:**

Start Date for Survey:  End Date for Survey:

When did you obtain your motorcycle licence? year month

Have you ridden a registered motorcycle or scooter on the road during the above period?

Yes  No  →

When was the last time you rode a registered motorcycle or scooter on the road?

Day of Week:  Date:

Thank you for your time.  
Please return the survey in the supplied reply-paid envelope.

↓

### Motorcycle and Scooter Details

Please provide details of any motorcycles or scooters you rode during the above period.

Number	1	2	3	4	5
Type	Motorcycle <input type="checkbox"/>	Motorcycle <input type="checkbox"/>	Motorcycle <input type="checkbox"/>	Motorcycle <input type="checkbox"/>	Motorcycle <input type="checkbox"/>
	Scooter <input type="checkbox"/>	Scooter <input type="checkbox"/>	Scooter <input type="checkbox"/>	Scooter <input type="checkbox"/>	Scooter <input type="checkbox"/>
	Other <input type="checkbox"/>	Other <input type="checkbox"/>	Other <input type="checkbox"/>	Other <input type="checkbox"/>	Other <input type="checkbox"/>
Make	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>
Model	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>
Year	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>
Engine Size (cc)	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>
Ownership	Self <input type="checkbox"/>	Self <input type="checkbox"/>	Self <input type="checkbox"/>	Self <input type="checkbox"/>	Self <input type="checkbox"/>
	Other Person in Household <input type="checkbox"/>	Other Person in Household <input type="checkbox"/>	Other Person in Household <input type="checkbox"/>	Other Person in Household <input type="checkbox"/>	Other Person in Household <input type="checkbox"/>
	Other Person not in Household <input type="checkbox"/>	Other Person not in Household <input type="checkbox"/>	Other Person not in Household <input type="checkbox"/>	Other Person not in Household <input type="checkbox"/>	Other Person not in Household <input type="checkbox"/>

Can you please provide a **contact phone number** for your household, in case we need to contact you to confirm or clarify some of your answers.

Please turn the page - and provide details of your motorcycle travel from  to

# Appendix B: Travel Diary Form

Note that the dates of the ten days were over-printed on the surveys, at the top of each column.

Travel Diary Please fill in any motorcycle or scooter travel you do for each of the survey days.																																																																																													
Travel Day	Friday	Saturday	Sunday																																																																																										
Did you ride a <b>registered</b> bike <b>on the road</b> on this day?	Yes <input type="checkbox"/> No <input type="checkbox"/> →	Yes <input type="checkbox"/> No <input type="checkbox"/> →	Yes <input type="checkbox"/> No <input type="checkbox"/> →																																																																																										
What is the number of this bike? <i>(from the front page of this survey)</i>	<input type="text"/>	<input type="text"/>	<input type="text"/>																																																																																										
Start time of <b>first</b> bike trip?	<input type="text"/> : <input type="text"/> a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>	<input type="text"/> : <input type="text"/> a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>	<input type="text"/> : <input type="text"/> a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>																																																																																										
Suburb/town started from?	<input type="text"/>	<input type="text"/>	<input type="text"/>																																																																																										
Odometer reading at <b>start of day</b> ?	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>																																																																																										
<b>Why</b> did you ride on this day? <i>(tick all that apply)</i>	Travel to/from work <input type="checkbox"/> Recreation <input type="checkbox"/> Courier (work) <input type="checkbox"/> Touring <input type="checkbox"/> Other purpose <input type="checkbox"/> → please describe <input type="text"/>	Travel to/from work <input type="checkbox"/> Recreation <input type="checkbox"/> Courier (work) <input type="checkbox"/> Touring <input type="checkbox"/> Other purpose <input type="checkbox"/> → please describe <input type="text"/>	Travel to/from work <input type="checkbox"/> Recreation <input type="checkbox"/> Courier (work) <input type="checkbox"/> Touring <input type="checkbox"/> Other purpose <input type="checkbox"/> → please describe <input type="text"/>																																																																																										
Did you ride in a group of 3 or more on this day?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>																																																																																										
What main suburbs/towns/places did you travel to/through on this day?	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>																																																																																										
What major roads did you use on this day?	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>																																																																																										
End time of <b>last</b> bike trip?	<input type="text"/> : <input type="text"/> a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>	<input type="text"/> : <input type="text"/> a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>	<input type="text"/> : <input type="text"/> a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>																																																																																										
Suburb/town ended in?	<input type="text"/>	<input type="text"/>	<input type="text"/>																																																																																										
Odometer reading at <b>end of day</b> ?	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>																																																																																										
<b>Total time</b> spent riding on day?	<input type="text"/> hours <input type="text"/> mins	<input type="text"/> hours <input type="text"/> mins	<input type="text"/> hours <input type="text"/> mins																																																																																										
Did you ever have a pillion passenger on this day?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>																																																																																										
What type of protective clothing/gear was worn on this day? <i>(tick all that apply)</i>  <i>Protective clothing must be motorcycle-specific protective clothing</i>	<table border="0"> <tr> <td></td> <td>Self</td> <td>Pillion</td> </tr> <tr> <td>Full-face helmet</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Open-face helmet</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Protective Jacket</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Protective Pants</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>One-piece Suit</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Body Armour</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Boots</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Gloves</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>		Self	Pillion	Full-face helmet	<input type="checkbox"/>	<input type="checkbox"/>	Open-face helmet	<input type="checkbox"/>	<input type="checkbox"/>	Protective Jacket	<input type="checkbox"/>	<input type="checkbox"/>	Protective Pants	<input type="checkbox"/>	<input type="checkbox"/>	One-piece Suit	<input type="checkbox"/>	<input type="checkbox"/>	Body Armour	<input type="checkbox"/>	<input type="checkbox"/>	Boots	<input type="checkbox"/>	<input type="checkbox"/>	Gloves	<input type="checkbox"/>	<input type="checkbox"/>	Other	<input type="checkbox"/>	<input type="checkbox"/>	<table border="0"> <tr> <td></td> <td>Self</td> <td>Pillion</td> </tr> <tr> <td>Full-face helmet</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Open-face helmet</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Protective Jacket</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Protective Pants</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>One-piece Suit</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Body Armour</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Boots</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Gloves</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>		Self	Pillion	Full-face helmet	<input type="checkbox"/>	<input type="checkbox"/>	Open-face helmet	<input type="checkbox"/>	<input type="checkbox"/>	Protective Jacket	<input type="checkbox"/>	<input type="checkbox"/>	Protective Pants	<input type="checkbox"/>	<input type="checkbox"/>	One-piece Suit	<input type="checkbox"/>	<input type="checkbox"/>	Body Armour	<input type="checkbox"/>	<input type="checkbox"/>	Boots	<input type="checkbox"/>	<input type="checkbox"/>	Gloves	<input type="checkbox"/>	<input type="checkbox"/>	Other	<input type="checkbox"/>	<input type="checkbox"/>	<table border="0"> <tr> <td></td> <td>Self</td> <td>Pillion</td> </tr> <tr> <td>Full-face helmet</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Open-face helmet</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Protective Jacket</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Protective Pants</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>One-piece Suit</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Body Armour</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Boots</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Gloves</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>		Self	Pillion	Full-face helmet	<input type="checkbox"/>	<input type="checkbox"/>	Open-face helmet	<input type="checkbox"/>	<input type="checkbox"/>	Protective Jacket	<input type="checkbox"/>	<input type="checkbox"/>	Protective Pants	<input type="checkbox"/>	<input type="checkbox"/>	One-piece Suit	<input type="checkbox"/>	<input type="checkbox"/>	Body Armour	<input type="checkbox"/>	<input type="checkbox"/>	Boots	<input type="checkbox"/>	<input type="checkbox"/>	Gloves	<input type="checkbox"/>	<input type="checkbox"/>	Other	<input type="checkbox"/>	<input type="checkbox"/>
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Please fill in any motorcycle or scooter travel you do for each of the survey days.			
Monday	Tuesday	Wednesday	Thursday
<div style="display: flex; justify-content: space-between;"> <span>Yes <input type="checkbox"/></span> <span>No <input type="checkbox"/></span> <span>→</span> <span>Yes <input type="checkbox"/></span> <span>No <input type="checkbox"/></span> <span>→</span> <span>Yes <input type="checkbox"/></span> <span>No <input type="checkbox"/></span> <span>→</span> <span>Yes <input type="checkbox"/></span> <span>No <input type="checkbox"/></span> <span>→ over page</span> </div>			
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<div style="display: flex; justify-content: space-between;"> <span>Travel to/from work <input type="checkbox"/></span> <span>Travel to/from work <input type="checkbox"/></span> <span>Travel to/from work <input type="checkbox"/></span> <span>Travel to/from work <input type="checkbox"/></span> </div>			
<div style="display: flex; justify-content: space-between;"> <span>Recreation <input type="checkbox"/></span> <span>Recreation <input type="checkbox"/></span> <span>Recreation <input type="checkbox"/></span> <span>Recreation <input type="checkbox"/></span> </div>			
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<div style="display: flex; justify-content: space-between;"> <span>Touring <input type="checkbox"/></span> <span>Touring <input type="checkbox"/></span> <span>Touring <input type="checkbox"/></span> <span>Touring <input type="checkbox"/></span> </div>			
<div style="display: flex; justify-content: space-between;"> <span>Other purpose <input type="checkbox"/></span> <span>Other purpose <input type="checkbox"/></span> <span>Other purpose <input type="checkbox"/></span> <span>Other purpose <input type="checkbox"/></span> </div>			
<div style="display: flex; justify-content: space-between;"> <span>please describe</span> <span>please describe</span> <span>please describe</span> <span>please describe</span> </div>			
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<div style="display: flex; justify-content: space-between;"> <span><input type="text"/></span> <span><input type="text"/></span> <span><input type="text"/></span> <span><input type="text"/></span> </div>			
<div style="display: flex; justify-content: space-between;"> <span><input type="text"/></span> <span><input type="text"/></span> <span><input type="text"/></span> <span><input type="text"/></span> </div>			
<div style="display: flex; justify-content: space-between;"> <span>hours <input type="text"/> mins <input type="text"/></span> <span>hours <input type="text"/> mins <input type="text"/></span> <span>hours <input type="text"/> mins <input type="text"/></span> <span>hours <input type="text"/> mins <input type="text"/></span> </div>			
<div style="display: flex; justify-content: space-between;"> <span>Yes <input type="checkbox"/></span> <span>No <input type="checkbox"/></span> <span>Yes <input type="checkbox"/></span> <span>No <input type="checkbox"/></span> <span>Yes <input type="checkbox"/></span> <span>No <input type="checkbox"/></span> <span>Yes <input type="checkbox"/></span> <span>No <input type="checkbox"/></span> </div>			
<div style="display: flex; justify-content: space-between;"> <span>Self <input type="checkbox"/> Pillion <input type="checkbox"/></span> <span>Self <input type="checkbox"/> Pillion <input type="checkbox"/></span> <span>Self <input type="checkbox"/> Pillion <input type="checkbox"/></span> <span>Self <input type="checkbox"/> Pillion <input type="checkbox"/></span> </div>			
<div style="display: flex; justify-content: space-between;"> <span>Full-face helmet <input type="checkbox"/></span> <span>Full-face helmet <input type="checkbox"/></span> <span>Full-face helmet <input type="checkbox"/></span> <span>Full-face helmet <input type="checkbox"/></span> </div>			
<div style="display: flex; justify-content: space-between;"> <span>Open-face helmet <input type="checkbox"/></span> <span>Open-face helmet <input type="checkbox"/></span> <span>Open-face helmet <input type="checkbox"/></span> <span>Open-face helmet <input type="checkbox"/></span> </div>			
<div style="display: flex; justify-content: space-between;"> <span>Protective Jacket <input type="checkbox"/></span> <span>Protective Jacket <input type="checkbox"/></span> <span>Protective Jacket <input type="checkbox"/></span> <span>Protective Jacket <input type="checkbox"/></span> </div>			
<div style="display: flex; justify-content: space-between;"> <span>Protective Pants <input type="checkbox"/></span> <span>Protective Pants <input type="checkbox"/></span> <span>Protective Pants <input type="checkbox"/></span> <span>Protective Pants <input type="checkbox"/></span> </div>			
<div style="display: flex; justify-content: space-between;"> <span>One-piece Suit <input type="checkbox"/></span> <span>One-piece Suit <input type="checkbox"/></span> <span>One-piece Suit <input type="checkbox"/></span> <span>One-piece Suit <input type="checkbox"/></span> </div>			
<div style="display: flex; justify-content: space-between;"> <span>Body Armour <input type="checkbox"/></span> <span>Body Armour <input type="checkbox"/></span> <span>Body Armour <input type="checkbox"/></span> <span>Body Armour <input type="checkbox"/></span> </div>			
<div style="display: flex; justify-content: space-between;"> <span>Boots <input type="checkbox"/></span> <span>Boots <input type="checkbox"/></span> <span>Boots <input type="checkbox"/></span> <span>Boots <input type="checkbox"/></span> </div>			
<div style="display: flex; justify-content: space-between;"> <span>Gloves <input type="checkbox"/></span> <span>Gloves <input type="checkbox"/></span> <span>Gloves <input type="checkbox"/></span> <span>Gloves <input type="checkbox"/></span> </div>			
<div style="display: flex; justify-content: space-between;"> <span>Other <input type="checkbox"/></span> <span>Other <input type="checkbox"/></span> <span>Other <input type="checkbox"/></span> <span>Other <input type="checkbox"/></span> </div>			

Please fill in any motorcycle or scooter travel you do for each of the survey days.			
Travel Day	Friday	Saturday	Sunday
Did you ride a <b>registered</b> bike <b>on the road</b> on this day?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
What is the number of this bike? <i>(from the front page of this survey)</i>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Start time of <b>first</b> bike trip?	<input type="text"/> a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>	<input type="text"/> a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>	<input type="text"/> a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>
Suburb/town started from?	<input type="text"/>	<input type="text"/>	<input type="text"/>
Odometer reading at <b>start of day</b> ?	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>Why</b> did you ride on this day? <i>(tick all that apply)</i>	Travel to/from work <input type="checkbox"/> Recreation <input type="checkbox"/> Courier (work) <input type="checkbox"/> Touring <input type="checkbox"/> Other purpose <input type="checkbox"/>	Travel to/from work <input type="checkbox"/> Recreation <input type="checkbox"/> Courier (work) <input type="checkbox"/> Touring <input type="checkbox"/> Other purpose <input type="checkbox"/>	Travel to/from work <input type="checkbox"/> Recreation <input type="checkbox"/> Courier (work) <input type="checkbox"/> Touring <input type="checkbox"/> Other purpose <input type="checkbox"/>
	<i>please describe</i> <input type="text"/>	<i>please describe</i> <input type="text"/>	<i>please describe</i> <input type="text"/>
Did you ride in a group of 3 or more on this day?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
What main suburbs/towns/places did you travel to/through on this day?	<input type="text"/>	<input type="text"/>	<input type="text"/>
What major roads did you use on this day?	<input type="text"/>	<input type="text"/>	<input type="text"/>
End time of <b>last</b> bike trip?	<input type="text"/> a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>	<input type="text"/> a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>	<input type="text"/> a.m. <input type="checkbox"/> p.m. <input type="checkbox"/>
Suburb/town ended in?	<input type="text"/>	<input type="text"/>	<input type="text"/>
Odometer reading at <b>end of day</b> ?	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>Total time</b> spent riding on day?	<input type="text"/> hours <input type="text"/> mins	<input type="text"/> hours <input type="text"/> mins	<input type="text"/> hours <input type="text"/> mins
Did you ever have a pillion passenger on this day?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
What type of protective clothing/gear was worn on this day? <i>(tick all that apply)</i>	Self Pillion Full-face helmet <input type="checkbox"/> <input type="checkbox"/> Open-face helmet <input type="checkbox"/> <input type="checkbox"/> Protective Jacket <input type="checkbox"/> <input type="checkbox"/> Protective Pants <input type="checkbox"/> <input type="checkbox"/> One-piece Suit <input type="checkbox"/> <input type="checkbox"/> Body Armour <input type="checkbox"/> <input type="checkbox"/> Boots <input type="checkbox"/> <input type="checkbox"/> Gloves <input type="checkbox"/> <input type="checkbox"/> Other <input type="checkbox"/> <input type="checkbox"/>	Self Pillion Full-face helmet <input type="checkbox"/> <input type="checkbox"/> Open-face helmet <input type="checkbox"/> <input type="checkbox"/> Protective Jacket <input type="checkbox"/> <input type="checkbox"/> Protective Pants <input type="checkbox"/> <input type="checkbox"/> One-piece Suit <input type="checkbox"/> <input type="checkbox"/> Body Armour <input type="checkbox"/> <input type="checkbox"/> Boots <input type="checkbox"/> <input type="checkbox"/> Gloves <input type="checkbox"/> <input type="checkbox"/> Other <input type="checkbox"/> <input type="checkbox"/>	Self Pillion Full-face helmet <input type="checkbox"/> <input type="checkbox"/> Open-face helmet <input type="checkbox"/> <input type="checkbox"/> Protective Jacket <input type="checkbox"/> <input type="checkbox"/> Protective Pants <input type="checkbox"/> <input type="checkbox"/> One-piece Suit <input type="checkbox"/> <input type="checkbox"/> Body Armour <input type="checkbox"/> <input type="checkbox"/> Boots <input type="checkbox"/> <input type="checkbox"/> Gloves <input type="checkbox"/> <input type="checkbox"/> Other <input type="checkbox"/> <input type="checkbox"/>
	<i>Protective clothing must be motorcycle-specific protective clothing</i>		

## Appendix C: Comment Form

Do you have any comments about riding motorcycles or scooters in your area?

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Do you have any comments about this survey?

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Thank you very much for your time and help with this survey

## Appendix D: Cover Letter



### Victorian Integrated Survey of Travel and Activity A Survey of Day-to-Day Travel

#### Victorian Integrated Survey of Travel and Activity

*Collects data on all travel*

- *by all types of people*
- *for all types of travel*
- *for every possible purpose*
- *the big trips and the small*
- *even days without any travel at all*

***To ensure that transport planning decisions are made in line with the travel needs of residents of the area.***



Dear Motorcycle or Scooter rider,

You were recently kind enough to take part in the Victorian Integrated Survey of Travel and Activity – a Survey of Day-to-Day Travel. In your response to that survey, you indicated that you had a motorcycle licence.

The Department of Infrastructure and VicRoads have commissioned The Urban Transport Institute to undertake a follow-up survey of motorcycle and scooter riders who responded to the Travel Survey.

Motorcycle and scooter riders are an important segment of road users whose voice is often under-represented. This is your opportunity to provide information that will contribute to a better understanding of the issues surrounding these groups.

If more than one person in your household indicated they had a motorcycle licence, each of you will receive a questionnaire. We encourage each of you to complete your questionnaire and return it to us.

Your questionnaire is enclosed, together with a reply paid envelope to return it in. Key aspects of the questionnaire to note are as follows:

- We are interested in your on-road motorcycle or scooter travel over the specified 10 day period.
- Compared to the Travel Survey, we are only after a small amount of detail about your travel over this period.
- We have asked you to provide details of all motorcycles or scooters you have used for this travel.
- If you don't travel on some, or all, of the specified days, it will be simple to complete the questionnaire – we still need to know that.
- We have provided space for any comments on motorcycle or scooter riding issues you may wish to make.

If you have any queries about the survey, please don't hesitate to call the Travel Survey Team on 1800 045 047 (free call). For more information on the survey, you can visit the travel survey website at <http://www.doi.vic.gov.au/vista>.

We greatly value your further contribution.

Many thanks for your help.

Dr Tony Richardson  
Travel Survey Manager  
The Urban Transport Institute.



## Appendix E: Person Form Codes

Variable Name	Variable Meaning
PERSID	Person ID
Min	Y07H010001P01
Max	Y07H205742P20
Legend:	YyyHrrwwhhPpp
where	yy = year of survey rr = region of fieldwork ww = week hh = household number pp = person number

Variable Name	Variable Meaning
HHID	Household ID
Min	Y07H010001
Max	Y07H205742
Legend:	YyyHrrwwhh
where	yy = year of survey rr = region of fieldwork ww = week hh = household number

Variable Name	Variable Meaning
SampleRegion	Household Sampled From Which Region
Min	1
Max	20
1	Inner West Melbourne
2	Outer West Melbourne
3	Inner North Melbourne
4	Outer North Melbourne
5	Inner East Melbourne
6	Outer East Melbourne
7	Inner South Melbourne
8	Outer South Melbourne
9	DSE + [spare]
10	[spare]
11	Geelong
12	Ballarat
13	Bendigo
14	Shepparton
15	Latrobe Valley
16	Murrindindi + [spare]
17	[spare]
18	[spare]
19	[spare]
20	[spare]

Variable Name	Variable Meaning
RegionType	Greater Melbourne or Regional?
Min	1
Max	2
1	Melbourne
2	Regional

<b>Variable Name</b>	<b>Variable Meaning</b>
RealRegion	Household Region (geographically)
Min	1
Max	16
1	Inner West Melbourne
2	Outer West Melbourne
3	Inner North Melbourne
4	Outer North Melbourne
5	Inner East Melbourne
6	Outer East Melbourne
7	Inner South Melbourne
8	Outer South Melbourne
11	Geelong
12	Ballarat
13	Bendigo
14	Shepparton
15	Latrobe Valley
16	Murrindindi

<b>Variable Name</b>	<b>Variable Meaning</b>
PersonNumber	Person Number
Min	1
Max	20

<b>Variable Name</b>	<b>Variable Meaning</b>
MonthOfBirth	Month of Birth
Min	1
Max	12
-1	Missing
1	January
2	February
3	March
4	April
5	May
6	June
7	July
8	August
9	September
10	October
11	November
12	December

<b>Variable Name</b>	<b>Variable Meaning</b>
YearOfBirth	Year of Birth
Min	1900
Max	2008
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
Age	Age of Respondent
Min	0
Max	108
-2	N/A
-1	Missing

**Variable Name      Variable Meaning**

AgeGroup	Age Group
Min	1
Max	21
-2	N/A
-1	Missing
1	0-4
2	5-9
3	10-14
4	15-19
5	20-24
6	25-29
7	30-34
8	35-39
9	40-44
10	45-49
11	50-54
12	55-59
13	60-64
14	65-69
15	70-74
16	75-79
17	80-84
18	85-89
19	90-94
20	95-99
21	100+

**Variable Name      Variable Meaning**

Sex	Gender
Min	1
Max	2
-1	Missing
1	Male
2	Female

**Variable Name      Variable Meaning**

Relationship	Relationship to Person 1 in household
Min	1
Max	8
-2	N/A
-1	Missing
1	Spouse
2	Child
3	Sibling
4	Grandchild
5	Other relative
6	Unrelated
7	Self
8	Other

**Variable Name      Variable Meaning**

CarLicence	Car Licence
Min	1
Max	2
-1	Missing
1	Full Licence
2	Probationary Licence
3	Learners Permit
4	No Car Licence

<b>Variable Name</b>	<b>Variable Meaning</b>
MonthsP	Months that Probationary Licence has been held
Min	0
Max	36
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
MbikeLicence	Motorcycle licence
Min	1
Max	2
-1	Missing
1	Yes
2	No

<b>Variable Name</b>	<b>Variable Meaning</b>
OtherLicence	Other type of licence
Min	1
Max	2
-1	Missing
1	Yes
2	No

<b>Variable Name</b>	<b>Variable Meaning</b>
NoLicence	No licence
Min	1
Max	2
-1	Missing
1	Yes
2	No

<b>Variable Name</b>	<b>Variable Meaning</b>
Mbikes	Number of motorbikes in Household
Min	0
Max	9
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
RodeBike07	Rode Motorcycle on VISTA07 Travel Day
Min	1
Max	2
-1	Missing
1	Yes
2	No

<b>Variable Name</b>	<b>Variable Meaning</b>
DistRode07	Distance Ridden on VISTA07 Travel Day
Min	0
Max	110

<b>Variable Name</b>	<b>Variable Meaning</b>
RandHomeLong	Randomised Home Longitude

<b>Variable Name</b>	<b>Variable Meaning</b>
RandHomeLat	Randomised Home Latitude

**Variable Name      Variable Meaning**

Postcode      Home Postcode  
 Min      3000  
 Max      3999

**Variable Name      Variable Meaning**

StartDate      Start date of 10-day survey period for this person  
 Min      8/24/2007  
 Max      6/13/2008

**Variable Name      Variable Meaning**

EndDate      End date of 10-day survey period for this person  
 Min      9/2/2007  
 Max      6/22/2008

**Variable Name      Variable Meaning**

StartDay      Start day of 10-day survey period for this person  
 Min      1  
 Max      31

**Variable Name      Variable Meaning**

StartMonth      Start month of 10-day survey period for this person  
 Min      1  
 Max      12  
 1      January  
 2      February  
 3      March  
 4      April  
 5      May  
 6      June  
 7      July  
 8      August  
 9      September  
 10      October  
 11      November  
 12      December

**Variable Name      Variable Meaning**

StartYear      Start year of 10-day survey period for this person  
 Min      2007  
 Max      2008

**Variable Name      Variable Meaning**

EndDay      End date of 10-day survey period for this person  
 Min      1  
 Max      31

**Variable Name      Variable Meaning**

EndMonth      End month of 10-day survey period for this person  
 Min      1  
 Max      12  
 1      January  
 2      February  
 3      March  
 4      April  
 5      May  
 6      June  
 7      July  
 8      August  
 9      September

10	October
11	November
12	December

Variable Name	Variable Meaning
EndYear	End year of 10-day survey period for this person
Min	2007
Max	2008

Variable Name	Variable Meaning
Phone	Was a phone number obtained?
Min	1
Max	2
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
Phone	Contact phone number
-1	Missing

Variable Name	Variable Meaning
LicenceYear	Year gained licence
Min	pre-1950
Max	2008

Variable Name	Variable Meaning
LicenceMonth	Month gained licence
Min	1
Max	12
-1	Missing
1	January
2	February
3	March
4	April
5	May
6	June
7	July
8	August
9	September
10	October
11	November
12	December

Variable Name	Variable Meaning
YearsLicenceGroup	Years of Licence-Holding Groups
Min	1
Max	13
-2	N/A
-1	Missing
1	0-4
2	5-9
3	10-14
4	15-19
5	20-24
6	25-29
7	30-34
8	35-39
9	40-44
10	45-49
11	50-54
12	55-59
13	60+

Variable Name	Variable Meaning
HeldOneYear	Licence held for one year?
Min	1
Max	2
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
RodeBike	Rode bike during survey?
1	Yes
2	No

Variable Name	Variable Meaning
LastRodeDay	Day person last rode before survey
Min	1
Max	7
-2	N/A
-1	Missing
1	Monday
2	Tuesday
3	Wednesday
4	Thursday
5	Friday
6	Saturday
7	Sunday

Variable Name	Variable Meaning
LastRodeDate	Date person last rode before survey
-2	N/A
-1	Missing
Min	1
Max	31

<b>Variable Name</b>	<b>Variable Meaning</b>
LastRodeMonth	Month person last rode before survey
Min	1
Max	12
-2	N/A
-1	Missing
1	January
2	February
3	March
4	April
5	May
6	June
7	July
8	August
9	September
10	October
11	November
12	December

<b>Variable Name</b>	<b>Variable Meaning</b>
LastRodeYear	Year person last rode before survey
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
LastRodeMonthsAgo	Months since person last rode before survey
-2	N/A - rode during survey
-1	Missing
Min	0
Max	600

<b>Variable Name</b>	<b>Variable Meaning</b>
NumBikes	Number of bikes ridden during survey
Min	1
Max	5
-2	N/A
-1	Missing
1	1
2	2
3	3
4	4
5	5
6	>5

<b>Variable Name</b>	<b>Variable Meaning</b>
DaysRidden	Number of days ridden during survey, for any purpose
Min	1
Max	10
-2	N/A

<b>Variable Name</b>	<b>Variable Meaning</b>
DaysWork	Number of days ridden during survey, for commuting purpose
Min	0
Max	10
-2	N/A



<b>Variable Name</b>	<b>Variable Meaning</b>
DaysRecreation	Number of days ridden during survey, for recreation purpose
Min	0
Max	10
-2	N/A
<b>Variable Name</b>	<b>Variable Meaning</b>
DaysCourier	Number of days ridden during survey, for courier/work purpose
Min	0
Max	10
-2	N/A
<b>Variable Name</b>	<b>Variable Meaning</b>
DaysTouring	Number of days ridden during survey, for touring purpose
Min	0
Max	10
-2	N/A
<b>Variable Name</b>	<b>Variable Meaning</b>
DaysOther	Number of days ridden during survey, for other purposes
Min	0
Max	10
-2	N/A
<b>Variable Name</b>	<b>Variable Meaning</b>
Distance	Distance ridden during survey, per odometer readings
Min	0
Max	9999
-2	N/A
-1	Missing
<b>Variable Name</b>	<b>Variable Meaning</b>
Minutes	Minutes ridden during survey
Min	0
Max	9999
-2	N/A
-1	Missing
<b>Variable Name</b>	<b>Variable Meaning</b>
AveSpeed	Average riding speed during survey
Min	0
Max	999
-2	N/A
-1	Missing
<b>Variable Name</b>	<b>Variable Meaning</b>
DaysGroup	Number of days riding in group of 3 during survey
Min	0
Max	10
-2	N/A
-1	Missing
<b>Variable Name</b>	<b>Variable Meaning</b>
DaysPillion	Number of days riding with a pillion passenger, during survey
Min	0
Max	10
-2	N/A
-1	Missing

Variable Name	Variable Meaning
DaysSelf_FullHelmet	Number of days riding with full helmet
Min	0
Max	10
-2	N/A
-1	Missing

Variable Name	Variable Meaning
DaysSelf_OpenHelmet	Number of days riding with open helmet
Min	0
Max	10
-2	N/A
-1	Missing

Variable Name	Variable Meaning
DaysSelf_Jacket	Number of days riding with protective jacket
Min	0
Max	10
-2	N/A
-1	Missing

Variable Name	Variable Meaning
DaysSelf_Pants	Number of days riding with protective pants
Min	0
Max	10
-2	N/A
-1	Missing

Variable Name	Variable Meaning
DaysSelf_Suit	Number of days riding with protective suit
Min	0
Max	10
-2	N/A
-1	Missing

Variable Name	Variable Meaning
DaysSelf_Armour	Number of days riding with body armour
Min	0
Max	10
-2	N/A
-1	Missing

Variable Name	Variable Meaning
DaysSelf_Boots	Number of days riding with protective boots
Min	0
Max	10
-2	N/A
-1	Missing

Variable Name	Variable Meaning
DaysSelf_Gloves	Number of days riding with protective gloves
Min	0
Max	10
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
DaysSelf_Other	Number of days riding with other protective gear
Min	0
Max	10
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
DaysSelf_NoHelmet	Number of days riding with no helmet
Min	0
Max	10
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
DaysSelf_NoOther	Number of days riding with no protective gear (excluding helmets)
Min	0
Max	10
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
DaysSelf_Nothing	Number of days riding with no helmet or other protective gear
Min	0
Max	10
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
TypCountProtectSelf	On average (rounded), rider wore how many items of protective clothing?
Min	0
Max	9
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
DaysPill_FullHelmet	Number of days pillion riding with full helmet
Min	0
Max	10
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
DaysPill_OpenHelmet	Number of days pillion riding with open helmet
Min	0
Max	10
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
DaysPill_Jacket	Number of days pillion riding with protective jacket
Min	0
Max	10
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
DaysPill_Pants	Number of days pillion riding with protective pants
Min	0
Max	10
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
DaysPill_Suit	Number of days pillion riding with protective suit
Min	0
Max	10
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
DaysPill_Armour	Number of days pillion riding with body armour
Min	0
Max	10
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
DaysPill_Boots	Number of days pillion riding with protective boots
Min	0
Max	10
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
DaysPill_Gloves	Number of days pillion riding with protective gloves
Min	0
Max	10
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
DaysPill_Other	Number of days pillion riding with other protective gear
Min	0
Max	10
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
DaysPill_NoHelmet	Number of days pillion riding with no helmet
Min	0
Max	10
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
DaysPill_NoOther	Number of days pillion riding with no protective gear (excluding helmets)
Min	0
Max	10
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
DaysPill_Nothing	Number of days pillion riding with no helmet or other protective gear
Min	0
Max	10
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
TypCountProtectPill	On average (rounded), pillion wore how many items of protective clothing?
Min	0
Max	9
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
InitialPersonWeight	Person Weight from VISTA07
Min	0
Max	9999

<b>Variable Name</b>	<b>Variable Meaning</b>
RAWeight	Region-Age Weight from M/C Survey
Min	0
Max	10

<b>Variable Name</b>	<b>Variable Meaning</b>
FinalPersonWeight	Final Person Weight for M/C Survey
Min	0
Max	9999

## Appendix F: Vehicle Form Codes

Variable Name	Variable Meaning
VEHID	Vehicle ID
Min	Y07H010001P01V01
Max	Y07H205742P20V05
Legend:	YyyHrrwwhhPppVvv
where	yy = year of survey rr = region of fieldwork ww = week hh = household number pp = person number vv = vehicle number

Variable Name	Variable Meaning
PERSID	Person ID
Min	Y07H010001P01
Max	Y07H205742P20
Legend:	YyyHrrwwhhPpp
where	yy = year of survey rr = region of fieldwork ww = week hh = household number pp = person number

Variable Name	Variable Meaning
HHID	Household ID
Min	Y07H010001
Max	Y07H205742
Legend:	YyyHrrwwhh
where	yy = year of survey rr = region of fieldwork ww = week hh = household number

Variable Name	Variable Meaning
SampleRegion	Household Sampled From Which Region
Min	1
Max	20
1	Inner West Melbourne
2	Outer West Melbourne
3	Inner North Melbourne
4	Outer North Melbourne
5	Inner East Melbourne
6	Outer East Melbourne
7	Inner South Melbourne
8	Outer South Melbourne
9	DSE + [spare]
10	[spare]
11	Geelong
12	Ballarat
13	Bendigo
14	Shepparton
15	Latrobe Valley
16	Murrindindi + [spare]
17	[spare]
18	[spare]
19	[spare]
20	[spare]

Variable Name	Variable Meaning
RegionType	Is Region in Melbourne, or elsewhere?
Min	1
Max	2
1	Melbourne Metro
2	Regional Area

Variable Name	Variable Meaning
RealRegion	Household Region (geographically)
Min	1
Max	16
1	Inner West Melbourne
2	Outer West Melbourne
3	Inner North Melbourne
4	Outer North Melbourne
5	Inner East Melbourne
6	Outer East Melbourne
7	Inner South Melbourne
8	Outer South Melbourne
11	Geelong
12	Ballarat
13	Bendigo
14	Shepparton
15	Latrobe Valley
16	Murrindindi

Variable Name	Variable Meaning
PersonNumber	Person Number
Min	1
Max	20

Variable Name	Variable Meaning
VehicleNumber	Vehicle Number
Min	1
Max	5

Variable Name	Variable Meaning
VehicleCount	Number of vehicles ridden during survey
Min	1
Max	5
6	>5

Variable Name	Variable Meaning
HH_NumBikes	Number of motorbikes in Household
Min	0
Max	9
-2	N/A
-1	Missing

Variable Name	Variable Meaning
Type	Type of Vehicle
Min	1
Max	3
-1	Missing
1	Motorbike
2	Scooter
3	Other

Variable Name	Variable Meaning
Make	Vehicle Make
Min	1
Max	7
-2	N/A
-1	Missing
1	Acabion
2	Achilles
3	Adler
4	Adly Moto
5	Aermacchi
6	Aeromere
7	AJP (António Jorge Pinto)
8	AJS (Albert John Stevens)
9	Alfer
10	Alligator
11	Allstate
12	Amazonas
13	Ambassador
14	American Eagle
15	American IronHorse
16	APC (American Performance Cycle)
17	API (Automobile Products of India) (nee Lambretta)
18	Aprilia
19	Ariel
20	Armstrong
21	Arqin
22	ATK (Anti-Tension Kettenantrieb)
23	Ateca (nee Lambretta)
24	Bajaj
25	Baotian
26	Batavus
27	Beardmore
28	Benelli
29	Benzhou
30	Beta
31	Big Bear
32	Big Brute
33	Big Dog
34	Bimota
35	Blackburne
36	BMW
37	Bolwell Scoota
38	Borile
39	Boss Hoss
40	Bourget Bike Works
41	Britten
42	Brough
43	Brough Superior
44	BSA
45	Buell
46	Bultaco
47	Bug
48	Cagiva
49	California Motorcycle Company
50	Calthorpe
51	Can-Am
52	Capriolo
53	Carabela
54	Casal



55	CCM (Clews Competition Motorcycles)
56	Celestino
57	Čezeta
58	CF Moto
59	Chang Jiang
60	Chunlan
61	Cleveland
62	Cogsley Farnsworth
63	Confederate Motorcycles
64	Confersil
65	Cossack
66	Cotton
67	CPI
68	CR&S (Café Racers and Superbikes)
69	Crocker
70	Cushman
71	CWS (Centralne Warsztaty Samochodowe/Central Car Works)
72	CZ (Ceska Zbrojovka)
73	Daelim
74	Dandy/Sharptune
75	Derbi
76	Desperado
77	DF Motor
78	Di Blasi
79	Diamo
80	DKW (Dampf Kraft Wagen)
81	Dnepr
82	Donghai
83	DOT Motorcycles
84	Douglas
85	Ducati
86	Dürrkopp
87	EagleCraft
88	EagleWing
89	Ecosse
90	EFS
91	Emax
92	Emblem
93	EMC (Ehrlich Motorcycle Company)
94	EMW (Eisenacher Motoren-Werke)
95	Enfield
96	ESO (Ace)
97	EVT (Electric Vehicle Technology)
98	Excelsior (Bourgoin)
99	Excelsior (Brandenburg)
100	Excelsior (Coventry)
101	Excelsior (München)
102	Excelsior-Henderson (Chicago)
103	Excelsior-Henderson Motorcycle (1994-1999)
104	Factory Bike
105	Famel Zundapp
106	Fantic
107	Fischer
108	Flottweg
109	Flyscooters
110	FN (Fabrique National)
111	Fosti
112	Francis-Barnett
113	Gamax
114	Garelli

115	Gas Gas
116	Generic
117	Genuine Scooter Company
118	Ghani Automobile Industries
119	Ghezzi & Brian
120	Giamoto
121	Gilera
122	Gitane
123	GMZ (Gorkovskiy Mototsikletniy Zavod)
124	Goggo-Roller
125	Greeves
126	GS MotorWorks
127	Habib
128	Haojue
129	Happy Motorcycle
130	Harley-Davidson
131	Hartford
132	Heinkel
133	Helkama
134	Hellbound Steel
135	Herchee
136	Hercules (British)
137	Hercules (German)
138	Hero (Honda)
139	Hesketh Motorcycles
140	Highland
141	Hodaka
142	Honda
143	Horex
144	Hosk
145	HRD (Howard Raymond Davies)
146	Husaberg
147	Husqvarna
148	Hussar
149	Hyosung
150	IFA (Industrieverwaltung Fahrzeugbau)
151	IMZ-Ural
152	Indian Motocycle (USA)
153	Innocenti Lambretta
154	Ironworks
155	Islo
156	Isomoto
157	Italjet
158	Iver Johnson
159	Ivy
160	IWL (Industriewerke Lichterfelde)
161	IZH (Izhevsk Mechanical Works)
162	James
163	Jawa
164	Jiangsu Guowei
165	Jin Ma
166	Jincheng (Suzuki)
167	Jinlun
168	Jordan
169	Kangda
170	Kanuni
171	Kawasaki
172	Keenmotorbikes
173	Keeway
174	Kinetic

175	Kovrov
176	KPX
177	Kramit
178	Kreidler
179	KTM
180	Kymco
181	Laurin & Klement
182	Laverda
183	Lem
184	Lifan
185	Lilac
186	Linhai
187	LML (Lohia Machines Ltd)
188	Loncin
189	Longjia
190	Lube
191	Macal
192	Macbor
193	Magni
194	Magnum Chrome
195	Maico
196	Malaguti
197	Malanca
198	Marine Turbine Technologies
199	Marsh
200	Master Tech
201	Matchless
202	MBK (nee Motobécane)
203	MEBEA
204	Mego
205	Megola
206	Meiduo
207	Meitian
208	Merkel
209	Messerschmitt
210	Midual
211	Minsk
212	Mitsubishi
213	MM (Marsh Metz)
214	Mobylette
215	Modenas
216	Monark
217	Mondial
218	Montesa (Honda)
219	Monto Motors
220	Morbidelli
221	Moto Guzzi
222	Moto Morini
223	Motobécane
224	Motobella
225	Motobi
226	MotoCzysz
227	Motofino
228	Motolevo
229	Motorhispania
230	Moto-roma
231	Mototrans
232	Münch
233	Mustang
234	MuZ (Motorrad und Zweiradwerk)

235	MV Agusta
236	MZ (Motorradwerk Zschopau)
237	Nacional (Derbi)
238	Nanfeng Motor
239	NATI
240	New Hudson
241	Nimbus
242	Norman
243	Norton
244	Nougier
245	NSU (nee Lambretta)
246	N-Zeta (nee Čezeta)
247	OCC (Orange County Choppers)
248	OEC Commander
249	OK-Supreme
250	Ossa
251	Pannonia
252	Pantera
253	Panther
254	Pasco (nee Lambretta)
255	Petronas
256	Peugeot
257	PGO (Motive Power Industry)
258	Piaggio
259	Piatti
260	PMZ (Podol'skii Motocykletnyi Zavod)
261	Polini
262	Pope
263	Praga
264	PRC (Pro Racing Cycles)
265	Puch
266	Qingqi
267	Qlink
268	Rabbit
269	Ravi
270	R-Bike
271	Reading Standard
272	Red Horse
273	Rhino
274	Rickman
275	Ridley
276	Rieju
277	Rikuo
278	Roehr
279	Roketa
280	Rokon
281	Roxon
282	Royal Enfield
283	Rucker
284	Rudge-Whitworth
285	Sanglas
286	Saxon
287	Scorpa
288	Scott
289	SCP (Stoney Creek Powersports)
290	Sears
291	Serveta (nee Lambretta)
292	Shandong
293	Shanghai Jmstar
294	Shanghai Mainbon

295	Shanghai Xingfu Motorcycle Works
296	Shelung
297	Sherco
298	Siambraetta (nee Lambretta)
299	Siamoto
300	SIL (Scooters India Limited)
301	Simplex
302	Simson
303	SIS Sachs
304	SIT (Société Industrielle de Troyes) (nee Lambretta)
305	Skyteam
306	Sohrab
307	Sprite
308	Starway/Chu Lan
309	Steed
310	Studebaker Motor Company
311	Sunbeam
312	Sundiro
313	Super Asia
314	Super Star
315	Suzuki
316	SVM
317	Swift
318	SWM
319	Sym
320	SYM (Sanyang Motorcycle)
321	Tank Sports
322	Tecnomoto
323	Terra Modena
324	Terrot
325	TGB (Taiwan Golden Bee)
326	Thor
327	Titan
328	TIZ (Taganrogskiy Instrumentalnyi Zavod)
329	TM Racing
330	TMZ (Tyumenskiy Mototsikletnyi Zavod)
331	TN'G (Twist 'n' Go)
332	Tohatsu
333	Tomberlin
334	Tomos
335	Triumph
336	Troll
337	Tunturi
338	TVS
339	UM (United Motors)
340	Van Veen
341	Vectrix
342	Veli
343	Velocette
344	Vengeance
345	Vento
346	Vespa
347	Vetrix
348	Victoria Works
349	Victory
350	Villiers
351	Vincent HRD
352	Vincent Motors USA
353	Viper
354	Vmoto

355	Von Dutch Kustom Cycles
356	Voskhod
357	Vouga
358	Voxan
359	Vyrus
360	Wakan
361	Walba
362	Wangye
363	Waratah
364	Werner
365	West Coast Choppers
366	WFM (Warsaw's Motorcycle Factory)
367	Whizzer
368	Wicked Women Choppers
369	Wild West
370	Wooler
371	WRM Motorcycles
372	WSK (Wytownia Sprzetu Komunikacyjnego)
373	Wuyang
374	Wyse
375	Xtreme Choppers
376	Yale
377	Yamaha
378	Yangtze
379	Yankee
380	Yezdi (nee Ideal JAWA)
381	Yiben
382	Yiying
383	ZAP (Zero Air Pollution)
384	ZiD (V.A.Degtyarev Plant)
385	Zongshen
386	Zoot
387	Zündapp

Variable Name	Variable Meaning
Model	Vehicle Model
Min	1
Max	1179
-2	N/A
-1	Missing
1	Activator - Adly Moto
2	Bullet - Adly Moto
3	Cat - Adly Moto
4	Citybird - Adly Moto
5	E-Bike Fun Cruiser - Adly Moto
6	Fox - Adly Moto
7	Fun Cruiser - Adly Moto
8	Jet - Adly Moto
9	Noble - Adly Moto
10	Panther - Adly Moto
11	Predator - Adly Moto
12	Road Tracer - Adly Moto
13	Silver Fox - Adly Moto
14	Super Sonic - Adly Moto
15	Thunder Bike - Adly Moto
16	Ala Azzurra - Aermacchi
17	Ala Bianca - Aermacchi
18	Ala Blu - Aermacchi
19	Ala d'Oro - Aermacchi
20	Ala Rossa - Aermacchi

21	Ala Verde - Aermacchi
22	Aletta - Aermacchi
23	B - Aermacchi
24	Baja - Aermacchi
25	Brezza - Aermacchi
26	Cavaliere - Aermacchi
27	Chimera - Aermacchi
28	CRS - Aermacchi
29	CX - Aermacchi
30	De Luxe - Aermacchi
31	Diesel - Aermacchi
32	ERS - Aermacchi
33	GT - Aermacchi
34	Leggero - Aermacchi
35	M - Aermacchi
36	Macchitre - Aermacchi
37	MX - Aermacchi
38	R/C - Aermacchi
39	Rapido - Aermacchi
40	RR - Aermacchi
41	Shortster - Aermacchi
42	Sprint - Aermacchi
43	SS - Aermacchi
44	SST - Aermacchi
45	SX - Aermacchi
46	SXT - Aermacchi
47	TV - Aermacchi
48	TX - Aermacchi
49	Wisconsin - Aermacchi
50	X - Aermacchi
51	XR - Aermacchi
52	Z - Aermacchi
53	Zeffiretto - Aermacchi
54	Zeffiro - Aermacchi
55	Enduro - AJP (António Jorge Pinto)
56	Max - AJP (António Jorge Pinto)
57	Supercity - AJP (António Jorge Pinto)
58	Supermoto - AJP (António Jorge Pinto)
59	Trail - AJP (António Jorge Pinto)
60	CR3 - AJS (Albert John Stevens)
61	DD - AJS (Albert John Stevens)
62	Eos - AJS (Albert John Stevens)
63	YX-R - AJS (Albert John Stevens)
64	VR Enduro - Alfer
65	VR Supermoto - Alfer
66	A-1 - Alligator
67	A-2 - Alligator
68	A-3 - Alligator
69	A-4 - Alligator
70	A-5 - Alligator
71	A-6 - Alligator
72	Cushman - Allstate
73	Vespa - Allstate
74	Brazil - Amazonas
75	Electa - Ambassador
76	Embassy - Ambassador
77	Popular - Ambassador
78	Series 1 - Ambassador
79	Series 2 - Ambassador
80	Series 3 - Ambassador

81	Series 4 - Ambassador
82	Series 5 - Ambassador
83	Super S - Ambassador
84	Supreme - Ambassador
85	Classic - American Eagle
86	Desperado - American Eagle
87	Dragon - American Eagle
88	Falcon Sport Crusier - American Eagle
89	Laverda - American Eagle
90	Legacy - American Eagle
91	Maverick - American Eagle
92	Mirage - American Eagle
93	Raptor - American Eagle
94	Raven - American Eagle
95	Renegade - American Eagle
96	Silver Eagle - American Eagle
97	Sprite - American Eagle
98	Stalker - American Eagle
99	Stinger - American Eagle
100	STM - American Eagle
101	Street Fighter - American Eagle
102	STX - American Eagle
103	Talon - American Eagle
104	Warrior - American Eagle
105	XRT - American Eagle
106	Bandit - American IronHorse
107	Classic - American IronHorse
108	Legend - American IronHorse
109	LSC - American IronHorse
110	Outlaw - American IronHorse
111	Ranger - American IronHorse
112	Roadster - American IronHorse
113	Slammer - American IronHorse
114	Tejas - American IronHorse
115	Texas Chopper - American IronHorse
116	Thunder - American IronHorse
117	Big Boy - APC (American Performance Cycle)
118	Double Down - APC (American Performance Cycle)
119	High Roller - APC (American Performance Cycle)
120	Hustler - APC (American Performance Cycle)
121	Spirit - APC (American Performance Cycle)
122	Wild Card - APC (American Performance Cycle)
123	Amico - Aprilia
124	Area 51 - Aprilia
125	Atlantic - Aprilia
126	Blue Martin - Aprilia
127	Caponord - Aprilia
128	Classic - Aprilia
129	ETV - Aprilia
130	Falco - Aprilia
131	Gulliver - Aprilia
132	Habana - Aprilia
133	Leonardo - Aprilia
134	Mojita - Aprilia
135	Moto - Aprilia
136	Pegaso - Aprilia
137	Rally - Aprilia
138	RS - Aprilia
139	RST - Aprilia
140	RSV - Aprilia



141	RX - Aprilia
142	Scarabeo - Aprilia
143	SL - Aprilia
144	Sonic - Aprilia
145	SR - Aprilia
146	SXV - Aprilia
147	Tuono - Aprilia
148	TXR - Aprilia
149	Arrow - Ariel
150	Badger - Ariel
151	Cyclone - Ariel
152	Fieldmaster - Ariel
153	Huntmaster - Ariel
154	Leader - Ariel
155	Model A - Ariel
156	Model B - Ariel
157	Model C - Ariel
158	Model D - Ariel
159	Model E - Ariel
160	Model F - Ariel
161	Model G - Ariel
162	Pixie - Ariel
163	Red Hunter - Ariel
164	Scrambles - Ariel
165	Square Four - Ariel
166	Trials - Ariel
167	VB - Ariel
168	VCH - Ariel
169	WNG 350 Military Model - Ariel
170	MT500 - Armstrong
171	Brusier - Arqin
172	Metro - Arqin
173	RT - Arqin
174	Sprint - Arqin
175	V3 - Arqin
176	Cross Country - ATK (Anti-Tension Kettenantrieb)
177	Dirt Tracker - ATK (Anti-Tension Kettenantrieb)
178	Enduro - ATK (Anti-Tension Kettenantrieb)
179	Intimidator - ATK (Anti-Tension Kettenantrieb)
180	Mini Cross - ATK (Anti-Tension Kettenantrieb)
181	Motard - ATK (Anti-Tension Kettenantrieb)
182	MX - ATK (Anti-Tension Kettenantrieb)
183	XC - ATK (Anti-Tension Kettenantrieb)
184	Avenger - Bajaj
185	Chetak - Bajaj
186	CT - Bajaj
187	Discover - Bajaj
188	Kristal - Bajaj
189	Platina - Bajaj
190	Pulsar - Bajaj
191	Sunny - Bajaj
192	Wave - Bajaj
193	XCD - Bajaj
194	Classic - Baotian
195	DeLuxe - Baotian
196	GT4 - Baotian
197	GTR - Baotian
198	Retro - Baotian
199	Spitfire - Baotian
200	Sport - Baotian

201	Viking - Baotian
202	Appelbloesem - Batavus
203	Bilonet - Batavus
204	City Sprinter - Batavus
205	Conforte - Batavus
206	Regency - Batavus
207	Starflite - Batavus
208	Precision - Beardmore
209	254 - Benelli
210	2C - Benelli
211	304 - Benelli
212	354 - Benelli
213	491 - Benelli
214	504 - Benelli
215	654 - Benelli
216	Adiva - Benelli
217	Army Edition - Benelli
218	Banshee - Benelli
219	Barracuda - Benelli
220	Buzzer - Benelli
221	Cafe Racer - Benelli
222	Cobra - Benelli
223	Cougar - Benelli
224	Cross - Benelli
225	Dynamo - Benelli
226	Enduro - Benelli
227	Fireball - Benelli
228	GT - Benelli
229	Hurricane - Benelli
230	Jarno - Benelli
231	K2 - Benelli
232	Leoncino - Benelli
233	Mini Enduro - Benelli
234	Motorella - Benelli
235	Nuovo Leoncino - Benelli
236	Panther - Benelli
237	Pepe - Benelli
238	RR - Benelli
239	Sei - Benelli
240	Sprite - Benelli
241	Titanium - Benelli
242	Tornado - Benelli
243	Turismo - Benelli
244	Velvet - Benelli
245	Volcano - Benelli
246	YY110-2 - Benzhou
247	YY125T-18 - Benzhou
248	YY125T-19 - Benzhou
249	YY125T-21 - Benzhou
250	YY125T-24 - Benzhou
251	YY125T-25 - Benzhou
252	YY125T-26 - Benzhou
253	YY125T-3 - Benzhou
254	YY125T-5 - Benzhou
255	YY125T-6 - Benzhou
256	YY125T-8 - Benzhou
257	YY150T-27 - Benzhou
258	YY150T-28 - Benzhou
259	YY150T-3 - Benzhou
260	YY150T-4 - Benzhou

261	YY150T-6 - Benzhou
262	YY150T-B - Benzhou
263	YY200 - Benzhou
264	YY250 - Benzhou
265	YY250T-7 - Benzhou
266	YY50PY - Benzhou
267	YY50QT-10 - Benzhou
268	YY50QT-11 - Benzhou
269	YY50QT-15 - Benzhou
270	YY50QT-21 - Benzhou
271	YY50QT-23 - Benzhou
272	YY50QT-26 - Benzhou
273	YY50QT-3 - Benzhou
274	YY50QT-4 - Benzhou
275	YY50QT-5 - Benzhou
276	YY50QT-6 - Benzhou
277	YY50QT-7 - Benzhou
278	YY70PY - Benzhou
279	YY7QTD-6 - Benzhou
280	ALP - Beta
281	Ark - Beta
282	Cross - Beta
283	Eikon - Beta
284	Euro - Beta
285	Premier - Beta
286	REV-3 - Beta
287	Techno - Beta
288	Turismo - Beta
289	Athena - Big Bear
290	Devil's Advocate - Big Bear
291	Merc - Big Bear
292	Miss Behavin - Big Bear
293	Reaper - Big Bear
294	Screamin Demon - Big Bear
295	The Sled - Big Bear
296	Venom - Big Bear
297	Aerogilde - Big Dog
298	Aerosport - Big Dog
299	Boxer - Big Dog
300	Bulldog - Big Dog
301	Chopper - Big Dog
302	Coyote - Big Dog
303	Husky - Big Dog
304	Jackal - Big Dog
305	K-9 - Big Dog
306	Mastiff - Big Dog
307	Old Smokey - Big Dog
308	Pitbull - Big Dog
309	Proglide - Big Dog
310	Vintage - Big Dog
311	Wolf - Big Dog
312	Bellaria - Bimota
313	Biposta - Bimota
314	DB - Bimota
315	Furano - Bimota
316	HB - Bimota
317	KB - Bimota
318	Mantra - Bimota
319	SB6R - Bimota
320	SB8R - Bimota

321	Supermono - Bimota
322	Tesi - Bimota
323	Tuatara - Bimota
324	Vdue - Bimota
325	YB - Bimota
326	1200 GS - BMW
327	C1 - BMW
328	F Series - BMW
329	G Series - BMW
330	K Series - BMW
331	R Series - BMW
332	Arriba - Bolwell Scoota
333	Bella - Bolwell Scoota
334	Euro - Bolwell Scoota
335	EuroMX - Bolwell Scoota
336	Firenze - Bolwell Scoota
337	G-Max - Bolwell Scoota
338	Gypsy - Bolwell Scoota
339	HD - Bolwell Scoota
340	Jet - Bolwell Scoota
341	Jolie - Bolwell Scoota
342	Le Grande - Bolwell Scoota
343	Mio - Bolwell Scoota
344	PMX - Bolwell Scoota
345	Red Devil - Bolwell Scoota
346	Retro - Bolwell Scoota
347	Shark - Bolwell Scoota
348	VS - Bolwell Scoota
349	Cafe Racer - Borile
350	Scrambler - Borile
351	BHC-2 - Boss Hoss
352	BHC-3 - Boss Hoss
353	BHC-4 - Boss Hoss
354	BHC-5 - Boss Hoss
355	BHC-7 - Boss Hoss
356	BHC-9 - Boss Hoss
357	Auti-Mo - Bourget Bike Works
358	Beach Cruiser - Bourget Bike Works
359	Black Jack - Bourget Bike Works
360	Bobber - Bourget Bike Works
361	Bourgetster - Bourget Bike Works
362	Dragon - Bourget Bike Works
363	Fat Daddy - Bourget Bike Works
364	Fatso - Bourget Bike Works
365	Kruzer - Bourget Bike Works
366	Low-Blow - Bourget Bike Works
367	Magnum - Bourget Bike Works
368	Pro-Gets - Bourget Bike Works
369	Protrak Rigid - Bourget Bike Works
370	Python - Bourget Bike Works
371	Retro Chopper - Bourget Bike Works
372	Streetracer - Bourget Bike Works
373	Trike - Bourget Bike Works
374	Viper - Bourget Bike Works
375	V1000 - Britten
376	V1100 - Britten
377	11.50 - Brough Superior
378	SS100 - Brough Superior
379	SS680 - Brough Superior
380	SS80 - Brough Superior

381	B20 - BSA
382	B21 - BSA
383	B22 "Empire Star" - BSA
384	B23 - BSA
385	B24 - BSA
386	B25 - BSA
387	B25SS "Shooting Star" - BSA
388	B25ST - BSA
389	B26 - BSA
390	B29 - BSA
391	B31 - BSA
392	B32 - BSA
393	B33 - BSA
394	B34 - BSA
395	B40 - BSA
396	B40WD - BSA
397	B44 "Victor Enduro" - BSA
398	B44 "Victor Roadster" - BSA
399	B50MX "Motorcross" - BSA
400	B50SS "Gold Star" - BSA
401	B50T "Trail" - BSA
402	Beagle - BSA
403	Brigand - BSA
404	C10 - BSA
405	C11 - BSA
406	C12 - BSA
407	C15 - BSA
408	C25 "Barracuda" - BSA
409	D1 - BSA
410	D10 - BSA
411	D14/4 - BSA
412	D175 - BSA
413	D3 "Major" - BSA
414	D5 "Super" - BSA
415	D7 - BSA
416	Dandy - BSA
417	E30 - BSA
418	Firebird - BSA
419	G14 - BSA
420	G30 - BSA
421	G32 - BSA
422	G33 - BSA
423	Lightning - BSA
424	M19 - BSA
425	M20 - BSA
426	M21 - BSA
427	M22 - BSA
428	M23 "Silver Star"/"Empire Star" - BSA
429	M24 "Gold Star" - BSA
430	M33 - BSA
431	Rocket Three - BSA
432	Royal Star - BSA
433	SS80 - BSA
434	SS90 - BSA
435	Sunbeam - BSA
436	Super Flash - BSA
437	Thunderbolt - BSA
438	Winged Wheel - BSA
439	Battle Twin RR - Buell
440	Blast - Buell

441	Cyclone M2 - Buell
442	Firebolt - Buell
443	Lightning S1/X1 - Buell
444	Road Warrior RW - Buell
445	Thunderbolt S2/S3 - Buell
446	Ulysses - Buell
447	WestWind RS - Buell
448	White Lightning S1W - Buell
449	XB Series - Buell
450	Agility - Bug
451	Bandit - Bug
452	California - Bug
453	Escape - Bug
454	Espresso - Bug
455	Hawk - Bug
456	Jive - Bug
457	Navigator - Bug
458	Orion - Bug
459	Pronto - Bug
460	Super9 - Bug
461	Tango - Bug
462	Vibe - Bug
463	Xciting - Bug
464	Alpina - Bultaco
465	Astro - Bultaco
466	Frontera - Bultaco
467	Hunter - Bultaco
468	Junior - Bultaco
469	Lobito - Bultaco
470	Matador - Bultaco
471	Mercurio - Bultaco
472	Metralla - Bultaco
473	Pursang - Bultaco
474	Saturno - Bultaco
475	Sherco - Bultaco
476	Sherpa - Bultaco
477	Tiron - Bultaco
478	Canyon - Cagiva
479	Elefant - Cagiva
480	Freccia - Cagiva
481	Gran Canyon - Cagiva
482	Mantis - Cagiva
483	Mito - Cagiva
484	Navigator - Cagiva
485	Planet - Cagiva
486	Raptor - Cagiva
487	River - Cagiva
488	Roadster - Cagiva
489	SST - Cagiva
490	Supercity - Cagiva
491	V-Raptor - Cagiva
492	W12 - Cagiva
493	W16 - Cagiva
494	Xtra-Raptor - Cagiva
495	NS125 - Daelim
496	Roadwin - Daelim
497	S2 250 - Daelim
498	S-Five - Daelim
499	Atlantis - Derbi
500	Baja - Derbi

501	Boulevard - Derbi
502	Cross City - Derbi
503	DRD - Derbi
504	GP1 - Derbi
505	GPR - Derbi
506	Mulhacén - Derbi
507	Mulhacén Café - Derbi
508	Predator - Derbi
509	Red Bullet - Derbi
510	Terra - Derbi
511	X-Race - Derbi
512	X-Treme - Derbi
513	Ambassador - DKW (Dampf Kraft Wagen)
514	1098 - Ducati
515	748 - Ducati
516	749 - Ducati
517	750 Imola - Ducati
518	750 SS - Ducati
519	800SS - Ducati
520	848 - Ducati
521	851 - Ducati
522	888 - Ducati
523	900GTS - Ducati
524	916 - Ducati
525	996 - Ducati
526	998 - Ducati
527	999 - Ducati
528	Apollo - Ducati
529	Desmosedici - Ducati
530	Hypermotard - Ducati
531	Monster - Ducati
532	Multistrada - Ducati
533	Pantah - Ducati
534	Paso - Ducati
535	PaulSmart1000LE - Ducati
536	ST2 - Ducati
537	ST3 - Ducati
538	ST4 - Ducati
539	Supermono - Ducati
540	SuperSport - Ducati
541	Cino - Eaglewing
542	Elegante - Eaglewing
543	Powermax - Eaglewing
544	Sport 125 - Eaglewing
545	168 - EVT (Electric Vehicle Technology)
546	4000e - EVT (Electric Vehicle Technology)
547	Cadenza - Flyscooters
548	Il Bello - Flyscooters
549	La Vie - Flyscooters
550	Swift - Flyscooters
551	Spillo - Gamax
552	CBA - Gilera
553	CX - Gilera
554	DNA - Gilera
555	Fuoco - Gilera
556	GR2 - Gilera
557	Ice - Gilera
558	Nexus - Gilera
559	Nordwest - Gilera
560	RCR - Gilera

561	Runner - Gilera
562	Saturno - Gilera
563	SMT - Gilera
564	Stalker - Gilera
565	T4 - Gilera
566	TG1 - Gilera
567	1000 - Harley-Davidson
568	1200 - Harley-Davidson
569	Bad Boy - Harley-Davidson
570	Café Racer - Harley-Davidson
571	Convertible - Harley-Davidson
572	Daytona - Harley-Davidson
573	De Luxe - Harley-Davidson
574	Deuce - Harley-Davidson
575	Electra - Harley-Davidson
576	Fat Boy - Harley-Davidson
577	Glide - Harley-Davidson
578	Heritage - Harley-Davidson
579	Hugger - Harley-Davidson
580	Low Bob - Harley-Davidson
581	Low Rider - Harley-Davidson
582	Night Rod - Harley-Davidson
583	Night Train - Harley-Davidson
584	Road Glide - Harley-Davidson
585	Road King - Harley-Davidson
586	Screamin Eagle - Harley-Davidson
587	Sportster - Harley-Davidson
588	Springer - Harley-Davidson
589	SS - Harley-Davidson
590	SST - Harley-Davidson
591	Street Bob - Harley-Davidson
592	Street Glide - Harley-Davidson
593	Street Rod - Harley-Davidson
594	Sturgis - Harley-Davidson
595	Super Glide - Harley-Davidson
596	SX - Harley-Davidson
597	SXT - Harley-Davidson
598	Tour Glide - Harley-Davidson
599	Ultra Classic - Harley-Davidson
600	V-Rod - Harley-Davidson
601	Wide Glide - Harley-Davidson
602	150 - Heinkel
603	Roller 112 - Heinkel
604	Tourist - Heinkel
605	@125 - Honda
606	@150 - Honda
607	Activa - Honda
608	Aero - Honda
609	Amigo/Novio - Honda
610	Ape Series - Honda
611	Bali - Honda
612	Beat - Honda
613	Big Ruckus - Honda
614	Bite - Honda
615	Broad - Honda
616	Cabina - Honda
617	Camino/Hobbit - Honda
618	Caren - Honda
619	CB Series - Honda
620	CBF Series - Honda



621	CBR Series - Honda
622	Chalet - Honda
623	CM/CMX Series - Honda
624	CR Series - Honda
625	CRF Series - Honda
626	CT Series - Honda
627	Cub Series - Honda
628	CUV-ES - Honda
629	CX Series - Honda
630	Deauville - Honda
631	Dio - Honda
632	DJ-1 - Honda
633	Dylan - Honda
634	Elite - Honda
635	Eve - Honda
636	Express - Honda
637	EZ - Honda
638	Flush - Honda
639	Foresight - Honda
640	Forza - Honda
641	Freeway - Honda
642	Fusion - Honda
643	Giorcub - Honda
644	Giorno - Honda
645	GL Series (Goldwing) - Honda
646	HawkGT (Bros) - Honda
647	Helix - Honda
648	Humming - Honda
649	Joker/Shadow - Honda
650	Joy - Honda
651	Julio - Honda
652	Juno - Honda
653	Just - Honda
654	K - Honda
655	Lead - Honda
656	Leader - Honda
657	LittleHonda - Honda
658	M85 - Honda
659	Marvel - Honda
660	Metropolitan - Honda
661	Motocompo - Honda
662	NH Series - Honda
663	Novio - Honda
664	NSR Series - Honda
665	Pacific Coast - Honda
666	PAL - Honda
667	Pantheon - Honda
668	PAX - Honda
669	People - Honda
670	Phanteon - Honda
671	PS250 - Honda
672	PX50 - Honda
673	PXR50 - Honda
674	QR50 - Honda
675	RC Series - Honda
676	Reflex - Honda
677	Road Fox - Honda
678	Runaway - Honda
679	Scoopy - Honda
680	SCR100 - Honda

681	SFX - Honda
682	SFX50 - Honda
683	SH - Honda
684	Silver Wing - Honda
685	Sky - Honda
686	Spacy - Honda
687	Spree - Honda
688	Squash - Honda
689	ST Series - Honda
690	ST Series/Dax - Honda
691	Stream - Honda
692	Super Dio - Honda
693	SXR50 - Honda
694	Tact - Honda
695	Today - Honda
696	Topic - Honda
697	Valkyrie - Honda
698	Varie - Honda
699	VF/VFR Series - Honda
700	Via - Honda
701	Vision - Honda
702	Vocal - Honda
703	VT Series - Honda
704	VTR Series - Honda
705	VTX Series - Honda
706	Wallaroo - Honda
707	Wave Series - Honda
708	WH125 - Honda
709	X-4 - Honda
710	X8R - Honda
711	X8RS - Honda
712	XR/XL Series - Honda
713	Z Series - Honda
714	Zook - Honda
715	Zoomer (Ruckus) - Honda
716	Hussar CPI Power - Hussar
717	Aquila (Cruiser) - Hyosung
718	Classic - Hyosung
719	Comet - Hyosung
720	Exceed - Hyosung
721	EZ Series - Hyosung
722	GA Series - Hyosung
723	GF Series - Hyosung
724	GT Series - Hyosung
725	GV Series - Hyosung
726	Karion - Hyosung
727	KR Series - Hyosung
728	Megajet - Hyosung
729	MS1 Series - Hyosung
730	MS3 Series - Hyosung
731	Prima - Hyosung
732	Rally - Hyosung
733	Rapid - Hyosung
734	RT Series - Hyosung
735	Rush - Hyosung
736	RX Series - Hyosung
737	SD Series - Hyosung
738	Sense - Hyosung
739	SF Series - Hyosung
740	Super Cab - Hyosung

741	TN Series - Hyosung
742	Trend Killer - Hyosung
743	Troy - Hyosung
744	XRX Series - Hyosung
745	Dragster - Italjet
746	Fast Boy - Italjet
747	Formula - Italjet
748	Grifon - Italjet
749	Jack - Italjet
750	Jet-Set - Italjet
751	Jupiter - Italjet
752	Millenium - Italjet
753	Pit Jet - Italjet
754	Roller Craft - Italjet
755	Torpedo - Italjet
756	Velocifero - Italjet
757	1000R - Kawasaki
758	14 (1400GTR) - Kawasaki
759	454 LTD - Kawasaki
760	Concours - Kawasaki
761	Eliminator - Kawasaki
762	ER-5 - Kawasaki
763	GPZ Series - Kawasaki
764	H1 Mach III 500 - Kawasaki
765	H2 Mach IV 750 - Kawasaki
766	KDX Series - Kawasaki
767	KH Series - Kawasaki
768	KL250 - Kawasaki
769	KLE Series - Kawasaki
770	KLR Series - Kawasaki
771	KLX Series - Kawasaki
772	KR Series - Kawasaki
773	KSR II - Kawasaki
774	KX Series - Kawasaki
775	KZ Series - Kawasaki
776	Ninja - Kawasaki
777	Police Special - Kawasaki
778	S1 250 - Kawasaki
779	S2 350 - Kawasaki
780	Super Sherpa - Kawasaki
781	Versys - Kawasaki
782	Voyager - Kawasaki
783	Vulcan - Kawasaki
784	W650 - Kawasaki
785	Z Series - Kawasaki
786	Zephyr - Kawasaki
787	ZR Series - Kawasaki
788	ZRX100R - Kawasaki
789	ZX Series - Kawasaki
790	ZZR Series - Kawasaki
791	Adventure - KTM
792	Duke - KTM
793	EGS - KTM
794	EXC - KTM
795	EXC-F - KTM
796	GS - KTM
797	Junior Adventure - KTM
798	LC2 - KTM
799	LC4 - KTM
800	LSE - KTM

801	Mini Adventure - KTM
802	MXC - KTM
803	RC8 - KTM
804	RS - KTM
805	SMR - KTM
806	Super Enduro - KTM
807	Supermoto - KTM
808	SX - KTM
809	SXC - KTM
810	SX-F - KTM
811	XC - KTM
812	XC-W - KTM
813	Activ - Kymco
814	Agility - Kymco
815	Bet & Win - Kymco
816	Bet and Win - Kymco
817	Caro - Kymco
818	Cherry - Kymco
819	Cobra Cross - Kymco
820	Cobra Racer - Kymco
821	Cruiser - Kymco
822	Dink/Yager - Kymco
823	DJ Refined - Kymco
824	Ego - Kymco
825	Fever ZX - Kymco
826	Filly - Kymco
827	Grand Dink - Kymco
828	Grand King - Kymco
829	Grandvista - Kymco
830	Heroism - Kymco
831	Hipster - Kymco
832	Miler - Kymco
833	Movie - Kymco
834	New Dink - Kymco
835	People - Kymco
836	Pulsar - Kymco
837	Quannon - Kymco
838	Sooner - Kymco
839	Spike - Kymco
840	Straight - Kymco
841	Stryker - Kymco
842	Super 8 - Kymco
843	Super 9 - Kymco
844	Top Boy - Kymco
845	Venox - Kymco
846	Vitality - Kymco
847	Xciting - Kymco
848	Yup - Kymco
849	Zing - Kymco
850	3C - Laverda
851	Atlas - Laverda
852	Diamante - Laverda
853	Ghost Legend - Laverda
854	Ghost Strike - Laverda
855	GT - Laverda
856	Jota - Laverda
857	Lynx - Laverda
858	N - Laverda
859	RGS - Laverda
860	RS - Laverda

861	S - Laverda
862	SF - Laverda
863	SF2 - Laverda
864	SF3 - Laverda
865	SFC - Laverda
866	SS - Laverda
867	Strike - Laverda
868	TS - Laverda
869	TTS - Laverda
870	Centro - Malaguti
871	Ciak - Malaguti
872	Drakon - Malaguti
873	Firefox F15 - Malaguti
874	Jetline F10 - Malaguti
875	Madison - Malaguti
876	Phantom F12 - Malaguti
877	Ronco - Malaguti
878	Saigon - Malaguti
879	Warrior F18 - Malaguti
880	X3M Motard - Malaguti
881	XSM Supermotard - Malaguti
882	XTM Enduro - Malaguti
883	Yesterday - Malaguti
884	Booster - MBK (nee Motobécane)
885	CityLiner - MBK (nee Motobécane)
886	Flame X - MBK (nee Motobécane)
887	Flipper - MBK (nee Motobécane)
888	MachG - MBK (nee Motobécane)
889	Nitro - MBK (nee Motobécane)
890	Ovetto - MBK (nee Motobécane)
891	Skycruiser - MBK (nee Motobécane)
892	Skyliner - MBK (nee Motobécane)
893	Stunt - MBK (nee Motobécane)
894	Waap - MBK (nee Motobécane)
895	X-Limit - MBK (nee Motobécane)
896	X-Power - MBK (nee Motobécane)
897	Blaster - Peugeot
898	buxy - Peugeot
899	Elyseo - Peugeot
900	Elystar - Peugeot
901	Geopolis - Peugeot
902	Jetforce - Peugeot
903	Looxor - Peugeot
904	Ludix - Peugeot
905	Metal-X - Peugeot
906	Rapido - Peugeot
907	Satelis - Peugeot
908	Snake - Peugeot
909	speedake - Peugeot
910	Speedfight - Peugeot
911	SV50 - Peugeot
912	Trekker - Peugeot
913	V-Clic - Peugeot
914	Vivacity - Peugeot
915	Vogue - Peugeot
916	XP6 - Peugeot
917	XPS - Peugeot
918	XR6 - Peugeot
919	Zenith - Peugeot
920	Avanti - Piaggio

921	Beverly - Piaggio
922	Boxer - Piaggio
923	BV - Piaggio
924	Carnaby - Piaggio
925	Ciao - Piaggio
926	ET2 - Piaggio
927	ET4 - Piaggio
928	Evolution - Piaggio
929	Fly - Piaggio
930	Free - Piaggio
931	Grillo - Piaggio
932	Hexagon - Piaggio
933	Liberty - Piaggio
934	NRG - Piaggio
935	PX - Piaggio
936	Sfera - Piaggio
937	Si - Piaggio
938	Skipper - Piaggio
939	Superbravo - Piaggio
940	T - Piaggio
941	Typhoon - Piaggio
942	X8 - Piaggio
943	X9 - Piaggio
944	Zip - Piaggio
945	Albatros - Simson
946	Beach Racer - Simson
947	Enduro - Simson
948	Fighter - Simson
949	Habicht - Simson
950	Roller - Simson
951	S50 - Simson
952	S51 - Simson
953	Schikra - Simson
954	Schwalbe - Simson
955	Spatz - Simson
956	Sperber - Simson
957	SR1 - Simson
958	SR2 - Simson
959	SR50 - Simson
960	Star - Simson
961	Across - Suzuki
962	Boulevard - Suzuki
963	Burgman - Suzuki
964	Cavalcade - Suzuki
965	DR Series - Suzuki
966	DR-Z Series - Suzuki
967	EN 125cc 2a - Suzuki
968	Estilette - Suzuki
969	FR80 - Suzuki
970	FX110 - Suzuki
971	FXR150 - Suzuki
972	GN Series - Suzuki
973	GR650 Tempter - Suzuki
974	GS Series - Suzuki
975	GS500E/F - Suzuki
976	GSF/Bandit Series - Suzuki
977	GSX Katana - Suzuki
978	GSX Series - Suzuki
979	GSX-F/Katana Series - Suzuki
980	GSX-R Series - Suzuki

981	GT Series - Suzuki
982	GV Series - Suzuki
983	GZ125 Marauder - Suzuki
984	Hayabusa - Suzuki
985	Intruder - Suzuki
986	Katana AY50 - Suzuki
987	LS650 Savage - Suzuki
988	RC Series - Suzuki
989	RF Series - Suzuki
990	RG series - Suzuki
991	RGV Series - Suzuki
992	RM Series - Suzuki
993	RMX - Suzuki
994	RM-Z Series - Suzuki
995	RV 125 Van Van - Suzuki
996	SV Series - Suzuki
997	SW-1 - Suzuki
998	T20/X6 - Suzuki
999	TL1000 - Suzuki
1000	TU250 - Suzuki
1001	Volusa - Suzuki
1002	VS Series - Suzuki
1003	V-Strom - Suzuki
1004	VX 800 - Suzuki
1005	VZ 800 Marauder - Suzuki
1006	Zillion - Suzuki
1007	Bonus - Sym
1008	DD - Sym
1009	Fiddle - Sym
1010	GTS - Sym
1011	HD - Sym
1012	Husky - Sym
1013	Jet - Sym
1014	Le Grande/Joyride - Sym
1015	Magic - Sym
1016	Mask - Sym
1017	Megalo - Sym
1018	R1-Z - Sym
1019	RS - Sym
1020	RV - Sym
1021	Super Duke - Sym
1022	VS Excel - Sym
1023	3TA - Triumph
1024	5TA - Triumph
1025	Adventurer - Triumph
1026	America - Triumph
1027	Bonneville ("Hinckley", 2001+) - Triumph
1028	Bonneville ("Meridien", T120 and T140, 1959-1983) - Triumph
1029	Daytona - Triumph
1030	Legend - Triumph
1031	Scrambler 900 - Triumph
1032	Speed Four - Triumph
1033	Speed Triple - Triumph
1034	Speedmaster - Triumph
1035	Sprint - Triumph
1036	T100 Series - Triumph
1037	T150 - Triumph
1038	T160 - Triumph
1039	T90 - Triumph
1040	Terrier - Triumph

1041	Thruxton - Triumph
1042	Thunderbird - Triumph
1043	Tiger - Triumph
1044	Tiger Cub - Triumph
1045	Tiger Trail - Triumph
1046	Tigress Scooter - Triumph
1047	Tina Scooter - Triumph
1048	TR6C - Triumph
1049	Trident (Rocket III) - Triumph
1050	Trophy - Triumph
1051	TS8-1 - Triumph
1052	TSX - Triumph
1053	TSX8 - Triumph
1054	TT 600 - Triumph
1055	X75 - Triumph
1056	AMCA Troupes Aeról Portées Mle. 56 - Vespa
1057	COSA - Vespa
1058	ET - Vespa
1059	GL - Vespa
1060	GS - Vespa
1061	GT - Vespa
1062	GTR - Vespa
1063	GTS - Vespa
1064	GTV - Vespa
1065	LX - Vespa
1066	LXV - Vespa
1067	P - Vespa
1068	Paperino - Vespa
1069	PK - Vespa
1070	Primavera - Vespa
1071	PX - Vespa
1072	Racer - Vespa
1073	Rally - Vespa
1074	S - Vespa
1075	Special - Vespa
1076	Sport - Vespa
1077	Sprint Veloce - Vespa
1078	Sprinter - Vespa
1079	SS - Vespa
1080	Standard - Vespa
1081	T5 - Vespa
1082	U - Vespa
1083	V9A - Vespa
1084	VBB - Vespa
1085	VBC - Vespa
1086	VLB - Vespa
1087	VNA - Vespa
1088	VNC - Vespa
1089	Aerox Series - Yamaha
1090	Alba - Yamaha
1091	AT1/AT2/AT3 (dirt) - Yamaha
1092	BW Series - Yamaha
1093	BW'S - Yamaha
1094	C3 - Yamaha
1095	Chappy - Yamaha
1096	CR Series - Yamaha
1097	CS Series - Yamaha
1098	CT1/CT2/CT3 (dirt) - Yamaha
1099	CT175 - Yamaha
1100	DragStar - Yamaha



1101	DS7 - Yamaha
1102	DT Series - Yamaha
1103	DT1/DT2/DT3 (dirt) - Yamaha
1104	DT50 - Yamaha
1105	EC-02 - Yamaha
1106	eGO - Yamaha
1107	FJ Series - Yamaha
1108	FJR1300 - Yamaha
1109	Frog - Yamaha
1110	FS1 - Yamaha
1111	FS1 Series - Yamaha
1112	FZ Series - Yamaha
1113	FZR Series - Yamaha
1114	FZX700 - Yamaha
1115	Giggle - Yamaha
1116	Gladiator - Yamaha
1117	GT80 - Yamaha
1118	GTS1000 - Yamaha
1119	IT Series - Yamaha
1120	Jog - Yamaha
1121	Jog Series - Yamaha
1122	JT1/JT2 (dirt) - Yamaha
1123	Lagenda Series - Yamaha
1124	LC50 - Yamaha
1125	Libero - Yamaha
1126	LT2 (dirt) - Yamaha
1127	Majesty Series - Yamaha
1128	Mint - Yamaha
1129	MJ50 - Yamaha
1130	Morpho I - Yamaha
1131	Morphous - Yamaha
1132	MT-01 - Yamaha
1133	MX Series - Yamaha
1134	Neo's - Yamaha
1135	Nouvo - Yamaha
1136	PAS - Yamaha
1137	Passol - Yamaha
1138	PW Series - Yamaha
1139	QT50 - Yamaha
1140	Radian - Yamaha
1141	Raider - Yamaha
1142	RD Series - Yamaha
1143	Road Star - Yamaha
1144	Roadliner - Yamaha
1145	Royal Star - Yamaha
1146	RS - Yamaha
1147	RT Series - Yamaha
1148	RT1/RT2/RT3 (dirt) - Yamaha
1149	RX Series - Yamaha
1150	RX-Z - Yamaha
1151	RZ Series - Yamaha
1152	SC500 - Yamaha
1153	SDR 200 - Yamaha
1154	Seca II/Diversion Series - Yamaha
1155	Sirius - Yamaha
1156	Slider - Yamaha
1157	Spy - Yamaha
1158	SR Series - Yamaha
1159	SRX - Yamaha
1160	Stratoliner - Yamaha

1161	SZR 660 - Yamaha
1162	TDM Series - Yamaha
1163	TDR 250 - Yamaha
1164	TDR Series - Yamaha
1165	TRX Series - Yamaha
1166	TT 500 - Yamaha
1167	TT Series - Yamaha
1168	TTR Series - Yamaha
1169	TW Series - Yamaha
1170	TX Series - Yamaha
1171	TY Series - Yamaha
1172	TZ Series - Yamaha
1173	TZM 150 - Yamaha
1174	TZR Series - Yamaha
1175	V Star - Yamaha
1176	V90 - Yamaha
1177	Venture - Yamaha
1178	Vino - Yamaha
1179	Virago - Yamaha
1180	V-Ixion - Yamaha
1181	VMax - Yamaha
1182	V-Max - Yamaha
1183	Warrior - Yamaha
1184	Why - Yamaha
1185	WR-F Series - Yamaha
1186	X-1 - Yamaha
1187	XC Riva - Yamaha
1188	XC Series - Yamaha
1189	XJ Series - Yamaha
1190	XJR Series - Yamaha
1191	XS Series - Yamaha
1192	XT Series - Yamaha
1193	XTZ Series - Yamaha
1194	XV1600A/Wildstar/Road Star - Yamaha
1195	XV920R - Yamaha
1196	XZ 550 Vision - Yamaha
1197	Y125Z - Yamaha
1198	Y135/Spark/Sniper - Yamaha
1199	YBR 125 - Yamaha
1200	YCS1 - Yamaha
1201	YD1 - Yamaha
1202	YDS3 - Yamaha
1203	YL1 - Yamaha
1204	YM1 - Yamaha
1205	YR2 - Yamaha
1206	YS Series - Yamaha
1207	YZ Series - Yamaha
1208	YZ-F Series - Yamaha
1209	YZF Series (inc R1/R6/R7) - Yamaha
1210	YZF Thunder Series - Yamaha
1211	YZR Series - Yamaha
1212	Zest - Yamaha
1213	430 Automatic - Husqvarna
1214	510 - Husqvarna
1215	610 - Husqvarna

1216	CR Series - Husqvarna
1217	Husky Boy - Husqvarna
1218	Husky Nox - Husqvarna
1219	SM Series - Husqvarna
1220	SMR Series - Husqvarna
1221	TC Series - Husqvarna
1222	TE Series - Husqvarna
1223	WR Series - Husqvarna
1224	WRE Series - Husqvarna
1225	WRK Series - Husqvarna
1226	-----
1227	850 T5 - Moto Guzzi
1228	Airone - Moto Guzzi
1229	Alce - Moto Guzzi
1230	Astore - Moto Guzzi
1231	Bellagio - Moto Guzzi
1232	Breva - Moto Guzzi
1233	California - Moto Guzzi
1234	Cardellino - Moto Guzzi
1235	Daytona - Moto Guzzi
1236	Dingo - Moto Guzzi
1237	Dondolino - Moto Guzzi
1238	Falcone - Moto Guzzi
1239	Galletto - Moto Guzzi
1240	Griso - Moto Guzzi
1241	GT 17 - Moto Guzzi
1242	GTS - Moto Guzzi
1243	Le Mans - Moto Guzzi
1244	Lodola Sport - Moto Guzzi
1245	MGS-01 Corsa - Moto Guzzi
1246	Motoleggera - Moto Guzzi
1247	Nevada - Moto Guzzi
1248	Norge - Moto Guzzi
1249	Normale - Moto Guzzi
1250	Quota - Moto Guzzi
1251	Sport - Moto Guzzi
1252	Stornello - Moto Guzzi
1253	Trotter - Moto Guzzi
1254	V10 Centauro - Moto Guzzi
1255	V1000 - Moto Guzzi
1256	V35 - Moto Guzzi
1257	V50 Monza - Moto Guzzi
1258	V65 Lario - Moto Guzzi
1259	V7 - Moto Guzzi
1260	Zigolo - Moto Guzzi
1261	-----
1262	Big Max - PGO
1263	Bubu - PGO
1264	Comet - PGO
1265	G-Max - PGO
1266	LS - PGO
1267	PMX - PGO
1268	Star - PGO

1269	TR3 - PGO
1270	T-Rex - PGO
1271	-----
1272	XJR1300 - Yamaha
1273	-----
1274	Star Twin - BSA
1275	Matrix - Vmoto
1276	Milan - Vmoto
1277	Monaco - Vmoto
1278	Monte Carlo - Vmoto
1279	Montego - Vmoto
1280	Monza - Vmoto
1281	-----
1282	A - Velocette
1283	B - Velocette
1284	Civero - Velocette
1285	D - Velocette
1286	E - Velocette
1287	G - Velocette
1288	GTP - Velocette
1289	H - Velocette
1290	K - Velocette
1291	KN - Velocette
1292	KSS - Velocette
1293	KTP - Velocette
1294	KTS - Velocette
1295	LE - Velocette
1296	MAC - Velocette
1297	MOV - Velocette
1298	MSS - Velocette
1299	Thrupton - Velocette
1300	U - Velocette
1301	U32 - Velocette
1302	Valiant - Velocette
1303	Veloce - Velocette
1304	Venom - Velocette
1305	Viceroy - Velocette
1306	Viper - Velocette
1307	Vogue - Velocette
1308	-----
1309	ER-6N - Kawasaki
1310	-----
1311	MP3 - Piaggio

Variable Name	Variable Meaning
Year	Year of Manufacture
Min	1900
Max	2008
-2	N/A
-1	Missing

Variable Name	Variable Meaning
CC	Engine Size (cc)
Min	10
Max	2000
-2	N/A
-1	Missing

Variable Name	Variable Meaning
CCgroup	Engine Size groups
Min	1
Max	6
-2	N/A
-1	Missing
1	0-50
2	51-125
3	126-260
4	261-500
5	501-750
6	750+

Variable Name	Variable Meaning
Ownership	Who owns the bike ridden?
Min	1
Max	3
-1	Missing
1	Self
2	Household Member
3	Other (not a household member)

Variable Name	Variable Meaning
HeldOneYear	Has motorcycle licence been held >1 year?
Min	1
Max	2
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
YearsLicenceGroup	Years of Licence-Holding Groups
Min	1
Max	13
-2	N/A
-1	Missing
1	0-4
2	5-9
3	10-14
4	15-19
5	20-24
6	25-29
7	30-34
8	35-39
9	40-44
10	45-49
11	50-54
12	55-59
13	60+

Variable Name	Variable Meaning
AgeGroup	Age Group
Min	1
Max	21
-2	N/A
-1	Missing
1	0-4
2	5-9
3	10-14
4	15-19
5	20-24
6	25-29
7	30-34
8	35-39
9	40-44
10	45-49
11	50-54
12	55-59
13	60-64
14	65-69
15	70-74
16	75-79
17	80-84
18	85-89
19	90-94
20	95-99
21	100+

**Variable Name      Variable Meaning**

Sex	Gender
Min	1
Max	2
-1	Missing
1	Male
2	Female

**Variable Name      Variable Meaning**

Distance	Distance Travelled in 10 Day Period
Min	0
Max	9999

**Variable Name      Variable Meaning**

DaysTravelled	Days Travelled during Survey
Min	0
Max	10

**Variable Name      Variable Meaning**

InitialPersonWeight	Person Weight from VISTA07
Min	0
Max	9999

**Variable Name      Variable Meaning**

RAWeight	Region-Age Weight from M/C Survey
Min	0
Max	10

**Variable Name      Variable Meaning**

FinalPersonWeight	Final Person Weight for M/C Survey
Min	0
Max	9999

## Appendix G: Travel Diary Form Codes

Variable Name	Variable Meaning
TRIPID	Travel Day ID
Min	Y07H010001P01D01
Max	Y07H205742P20D10
Legend:	YyyHrrwwhhPppDdd\
where	yy = year of survey rr = region of fieldwork ww = week hh = household number pp = person number dd = survey day number

Variable Name	Variable Meaning
PERSID	Person ID
Min	Y07H010001P01
Max	Y07H205742P20
Legend:	YyyHrrwwhhPpp
where	yy = year of survey rr = region of fieldwork ww = week hh = household number pp = person number

Variable Name	Variable Meaning
HHID	Household ID
Min	Y07H010001
Max	Y07H205742
Legend:	YyyHrrwwhh
where	yy = year of survey rr = region of fieldwork ww = week hh = household number

Variable Name	Variable Meaning
SampleRegion	Household Sampled From Which Region
Min	1
Max	20
1	Inner West Melbourne
2	Outer West Melbourne
3	Inner North Melbourne
4	Outer North Melbourne
5	Inner East Melbourne
6	Outer East Melbourne
7	Inner South Melbourne
8	Outer South Melbourne
9	DSE + [spare]
10	[spare]
11	Geelong
12	Ballarat
13	Bendigo
14	Shepparton
15	Latrobe Valley
16	Murrindindi + [spare]



Variable Name	Variable Meaning
RegionType	Is Region in Melbourne, or elsewhere?
Min	1
Max	2
1	Melbourne Metro
2	Regional Area

Variable Name	Variable Meaning
RealRegion	Household Region (geographically)
Min	1
Max	16
1	Inner West Melbourne
2	Outer West Melbourne
3	Inner North Melbourne
4	Outer North Melbourne
5	Inner East Melbourne
6	Outer East Melbourne
7	Inner South Melbourne
8	Outer South Melbourne
11	Geelong
12	Ballarat
13	Bendigo
14	Shepparton
15	Latrobe Valley
16	Murrindindi

Variable Name	Variable Meaning
PersonNumber	Person Number
Min	1
Max	20

Variable Name	Variable Meaning
AgeGroup	Age Group
Min	1
Max	21
-2	N/A
-1	Missing
1	0-4
2	5-9
3	10-14
4	15-19
5	20-24
6	25-29
7	30-34
8	35-39
9	40-44
10	45-49
11	50-54
12	55-59
13	60-64
14	65-69
15	70-74
16	75-79
17	80-84
18	85-89
19	90-94
20	95-99
21	100+

Variable Name	Variable Meaning
YearsLicenceGroup	Engine Size groups
Min	1
Max	13
-2	N/A
-1	Missing
1	0-4
2	5-9
3	10-14
4	15-19
5	20-24
6	25-29
7	30-34
8	35-39
9	40-44
10	45-49
11	50-54
12	55-59
13	60+

Variable Name	Variable Meaning
HeldOneYear	Has motorcycle licence been held >1 year?
Min	1
Max	2
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
VehicleCount	Number of vehicles ridden during survey
Min	1
Max	5
6	>5

Variable Name	Variable Meaning
TravelDay	Travel Day
Min	1
Max	10

Variable Name	Variable Meaning
DayOfWeek	Day of the week
Min	1
Max	7
-2	N/A
-1	Missing
1	Monday
2	Tuesday
3	Wednesday
4	Thursday
5	Friday
6	Saturday
7	Sunday

Variable Name	Variable Meaning
DateDay	Date of this survey day
Min	1
Max	31

Variable Name	Variable Meaning
DateMonth	Month of this survey day
Min	1
Max	12
1	January
2	February
3	March
4	April
5	May
6	June
7	July
8	August
9	September
10	October
11	November
12	December

Variable Name	Variable Meaning
DateYear	Year of this survey day
Min	2007
Max	2008

Variable Name	Variable Meaning
RodeBike	Rode bike during this day?
1	Yes
2	No

Variable Name	Variable Meaning
DayOfActivity	Day of the week
Min	1
Max	7
-2	N/A
-1	Missing
1	Monday
2	Tuesday
3	Wednesday
4	Thursday
5	Friday
6	Saturday
7	Sunday

Variable Name	Variable Meaning
BikeNum	Vehicle Number
Min	1
Max	5
-2	N/A
-1	Missing

Variable Name	Variable Meaning
CCgroup	Engine Size groups
Min	1
Max	6
-2	N/A
-1	Missing
1	0-50
2	51-125
3	126-260
4	261-500
5	501-750
6	750+

Variable Name	Variable Meaning
Type	Type of Vehicle
Min	1
Max	3
-2	N/A
-1	Missing
1	Motorbike
2	Scooter
3	Other

Variable Name	Variable Meaning
StartHour	Hour first travelled on motorbike this day
Min	1
Max	12
-2	N/A
-1	Missing

Variable Name	Variable Meaning
StartMinute	Minute first travelled on motorbike this day
Min	0
Max	59
-2	N/A
-1	Missing

Variable Name	Variable Meaning
StartAMPM	First travelled on motorbike this day AM or PM?
Min	a.m.
Max	p.m.
-2	N/A
-1	Missing

Variable Name	Variable Meaning
StartHour24	Hour of first trip
Min	4
Max	27
-2	N/A
-1	Missing

Variable Name	Variable Meaning
StartHourGroup	Travel start time
Min	1
Max	8
-2	N/A
-1	Missing
1	4:00am-6:59am
2	7:00am-9:59am
3	10:00am-12:59pm
4	1:00pm-3:59pm
5	4:00pm-6:59pm
6	7:00pm-9:59pm
7	10:00pm-12:59am
8	1:00am-3:59am

Variable Name	Variable Meaning
StartSuburb	Suburb person started first motorbike trip this day
-2	N/A
-1	Missing

Variable Name	Variable Meaning
StartPostcode	Postcode person started first motorbike trip this day
-2	N/A
-1	Missing

Variable Name	Variable Meaning
StartOdo	Start odometer reading for motorbike this day
-3	Not Provided/Existent
-2	N/A
-1	Missing

Variable Name	Variable Meaning
WhyWork	Rode bike for commuting purposes this day?
-2	N/A
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
WhyRecreation	Rode bike for recreation purposes this day?
-2	N/A
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
WhyCourier	Rode bike for courier/work purposes this day?
-2	N/A
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
WhyTouring	Rode bike for touring purposes this day?
-2	N/A
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
WhyOther	Rode bike for other purposes this day?
-2	N/A
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
WhyOtherSpecify	What was the other purpose ridden this day?
-2	N/A
-1	Missing
1	Chauffeur
2	Education
3	Medical
4	Personal Business
5	Religious Attendance
6	Shopping
7	Shopping, Personal Business
8	Shopping, Religious Attendance
9	Vehicle Licencing/Training/Purchasing
10	Vehicle Maintenance/Fueling

Variable Name	Variable Meaning
EndHour	Hour last travelled on motorbike this day
Min	1
Max	12
-2	N/A
-1	Missing

Variable Name	Variable Meaning
EndMinute	Minute last travelled on motorbike this day
Min	0
Max	59
-2	N/A
-1	Missing

Variable Name	Variable Meaning
EndAMPM	Last travelled on motorbike this day AM or PM?
Min	a.m.
Max	p.m.
-2	N/A
-1	Missing

Variable Name	Variable Meaning
EndHour24	Hour of last trip
Min	4
Max	27
-2	N/A
-1	Missing

**Variable Name                      Variable Meaning**

EndHourGroup	Travel end time
Min	1
Max	8
-2	N/A
-1	Missing
1	4:00am-6:59am
2	7:00am-9:59am
3	10:00am-12:59pm
4	1:00pm-3:59pm
5	4:00pm-6:59pm
6	7:00pm-9:59pm
7	10:00pm-12:59am
8	1:00am-3:59am

**Variable Name                      Variable Meaning**

EndSuburb	Suburb person ended last motorbike trip this day
-2	N/A
-1	Missing

**Variable Name                      Variable Meaning**

EndPostcode	Postcode person ended last motorbike trip this day
-2	N/A
-1	Missing

**Variable Name                      Variable Meaning**

EndOdo	End odometer reading for motorbike this day
-3	Not Provided/Existent
-2	N/A
-1	Missing

**Variable Name                      Variable Meaning**

HoursRidden	Hours ridden this day
Min	0
Max	24
-2	N/A
-1	Missing

**Variable Name                      Variable Meaning**

MinutesRidden	Minutes ridden this day
Min	0
Max	59
-2	N/A
-1	Missing

**Variable Name                      Variable Meaning**

TravelWith	Rode in group of 3 this day?
-2	N/A
-1	Missing
1	Yes
2	No

**Variable Name                      Variable Meaning**

Suburb1	Suburb visited during day (1 of 4)
-3	Not Provided/Existent
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
Suburb1	Suburb visited during day (1 of 4)
-3	Not Provided/Existent
-2	N/A
-1	Missing
<b>Variable Name</b>	<b>Variable Meaning</b>
Postcode1	Postcode visited during day (1 of 4)
-3	Not Provided/Existent
-2	N/A
-1	Missing
<b>Variable Name</b>	<b>Variable Meaning</b>
Suburb2	Suburb visited during day (2 of 4)
-3	Not Provided/Existent
-2	N/A
-1	Missing
<b>Variable Name</b>	<b>Variable Meaning</b>
Postcode2	Postcode visited during day (2 of 4)
-3	Not Provided/Existent
-2	N/A
-1	Missing
<b>Variable Name</b>	<b>Variable Meaning</b>
Suburb3	Suburb visited during day (3 of 4)
-3	Not Provided/Existent
-2	N/A
-1	Missing
<b>Variable Name</b>	<b>Variable Meaning</b>
Postcode3	Postcode visited during day (3 of 4)
-3	Not Provided/Existent
-2	N/A
-1	Missing
<b>Variable Name</b>	<b>Variable Meaning</b>
Suburb4	Suburb visited during day (4 of 4)
-3	Not Provided/Existent
-2	N/A
-1	Missing
<b>Variable Name</b>	<b>Variable Meaning</b>
Postcode4	Postcode visited during day (4 of 4)
-3	Not Provided/Existent
-2	N/A
-1	Missing
<b>Variable Name</b>	<b>Variable Meaning</b>
Street1a	Street Name used during day (1 of 4)
-3	Not Provided/Existent
-2	N/A
-1	Missing
<b>Variable Name</b>	<b>Variable Meaning</b>
Street1b	Street Type used during day (1 of 4)
-3	Not Provided/Existent
-2	N/A
-1	Missing



**Variable Name**      **Variable Meaning**  
 Street1              Full Street used during day (1 of 4)  
 -3                      Not Provided/Existent  
 -2                      N/A  
 -1                      Missing

**Variable Name**      **Variable Meaning**  
 Street2a              Street Name used during day (2 of 4)  
 -3                      Not Provided/Existent  
 -2                      N/A  
 -1                      Missing

**Variable Name**      **Variable Meaning**  
 Street2b              Street Type used during day (2 of 4)  
 -3                      Not Provided/Existent  
 -2                      N/A  
 -1                      Missing

**Variable Name**      **Variable Meaning**  
 Street2                Full Street used during day (2 of 4)  
 -3                      Not Provided/Existent  
 -2                      N/A  
 -1                      Missing

**Variable Name**      **Variable Meaning**  
 Street3a              Street Name used during day (3 of 4)  
 -3                      Not Provided/Existent  
 -2                      N/A  
 -1                      Missing

**Variable Name**      **Variable Meaning**  
 Street3b              Street Type used during day (3 of 4)  
 -3                      Not Provided/Existent  
 -2                      N/A  
 -1                      Missing

**Variable Name**      **Variable Meaning**  
 Street3                Full Street used during day (3 of 4)  
 -3                      Not Provided/Existent  
 -2                      N/A  
 -1                      Missing

**Variable Name**      **Variable Meaning**  
 Street4a              Street Name used during day (4 of 4)  
 -3                      Not Provided/Existent  
 -2                      N/A  
 -1                      Missing

**Variable Name**      **Variable Meaning**  
 Street4b              Street Type used during day (4 of 4)  
 -3                      Not Provided/Existent  
 -2                      N/A  
 -1                      Missing

**Variable Name**      **Variable Meaning**  
 Street4                Full Street used during day (4 of 4)  
 -3                      Not Provided/Existent  
 -2                      N/A  
 -1                      Missing

Variable Name	Variable Meaning
Pillion	Rode with pillion passenger this day?
-2	N/A
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
GearSelf_FullHelmet	Rode this day with full helmet
Min	0
Max	10
-2	N/A
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
GearSelf_OpenHelmet	Rode this day with open helmet
Min	0
Max	10
-2	N/A
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
GearSelf_Jacket	Rode this day with protective jacket
Min	0
Max	10
-2	N/A
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
GearSelf_Pants	Rode this day with protective pants
Min	0
Max	10
-2	N/A
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
GearSelf_Suit	Rode this day with protective suit
Min	0
Max	10
-2	N/A
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
GearSelf_Armour	Rode this day with body armour
Min	0
Max	10
-2	N/A
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
GearSelf_Boots	Rode this day with protective boots
Min	0
Max	10
-2	N/A
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
GearSelf_Gloves	Rode this day with protective gloves
Min	0
Max	10
-2	N/A
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
GearSelf_Other	Rode this day with other protective gear
Min	0
Max	10
-2	N/A
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
GearSelfCount	Number of protective items worn by self
-2	N/A
-1	Missing

Variable Name	Variable Meaning
GearPill_FullHelmet	Pillion rode this day with full helmet
Min	0
Max	10
-2	N/A
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
GearPill_OpenHelmet	Pillion rode this day with open helmet
Min	0
Max	10
-2	N/A
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
GearPill_Jacket	Pillion rode this day with protective jacket
Min	0
Max	10
-2	N/A
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
GearPill_Pants	Pillion rode this day with protective pants
Min	0
Max	10
-2	N/A
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
GearPill_Suit	Pillion rode this day with protective suit
Min	0
Max	10
-2	N/A
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
GearPill_Armour	Pillion rode this day with body armour
Min	0
Max	10
-2	N/A
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
GearPill_Boots	Pillion rode this day with protective boots
Min	0
Max	10
-2	N/A
-1	Missing
1	Yes
2	No

Variable Name	Variable Meaning
GearPill_Gloves	Pillion rode this day with protective gloves
Min	0
Max	10
-2	N/A
-1	Missing
1	Yes
2	No

<b>Variable Name</b>	<b>Variable Meaning</b>
GearPill_Other	Pillion rode this day with other protective gear
Min	0
Max	10
-2	N/A
-1	Missing
1	Yes
2	No

<b>Variable Name</b>	<b>Variable Meaning</b>
GearPillCount	Number of protective items worn by pillion
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
DayDistance	Distance ridden this day, per odometer
Min	0
Max	9999
-3	Not Provided/Existent
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
DayTime	Minutes ridden this day
Min	0
Max	9999
-3	Not Provided/Existent
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
DaySpeed	Average speed (km/hr), per odometer and time ridden
Min	0
Max	999
-3	Not Provided/Existent
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
DayFurthestReach	Straight-line distance between two most extreme suburbs visited
Min	0
Max	9999
-3	Not Provided/Existent
-2	N/A
-1	Missing

<b>Variable Name</b>	<b>Variable Meaning</b>
InitialPersonWeight	Person Weight from VISTA07
Min	0
Max	9999

<b>Variable Name</b>	<b>Variable Meaning</b>
RAWeight	Region-Age Weight from M/C Survey
Min	0
Max	10

<b>Variable Name</b>	<b>Variable Meaning</b>
FinalPersonWeight	Final Person Weight for M/C Survey
Min	0
Max	9999

<b>Variable Name</b>	<b>Variable Meaning</b>
DayWeight	Survey Day Weight
Min	0
Max	9999

<b>Variable Name</b>	<b>Variable Meaning</b>
TripWeight	Final Travel Day Weight for M/C Survey
Min	0
Max	9999

## Appendix H: Logic Checks

Note that the vast majority of questions within the survey must be answered from a provided list of answers, which ensures consistency of coding and avoids typos being made. In some cases (e.g. vehicle model) the possible answers will dynamically change based on answers to previous questions, further ensuring that logical and properly-formed answers are provided. Errors will also be reported if a relevant question is left unanswered.

In addition, the following errors or warnings will appear as the data is entered, and again before the data may be exported to complete entry of a survey.

- Within Person File
  - The phone number is checked against any number previously obtained during the main VISTA07 survey.
  - The date and day of week of the last travelled date must be a consistent pair.
  - The last day travelled, if answered, must be prior to the survey period.
  - The date the licence was gained must be prior to the survey period.
  - The date the licence was gained should not be prior to the person being seventeen years old.
  - Cross-checks are made to ensure consistency of the 'licence gain date' and the 'licence held one year?' answers.
- Within Vehicle File
  - The engine size field is dynamically coloured (at first yellow and then red) to indicate unlikely answers.
  - Warnings are given if a vehicle make or model is not in the existing list.
  - The make and model must correspond.
  - Motorcycle engine sizes not between 50cc and 1500cc are reported as a possible error.
  - Scooter engine sizes not between 49cc and 650cc are reported as a possible error.
- Within Travel Diary File
  - If 'other reason' for travelling has been ticked, it must be specified (and vice versa).
  - A reason for travelling must be provided.
  - If the person did not start or end their day in their home suburb, a warning is presented.
  - Legitimate start and end times must be provided for travel days, with the end time after the start time.
  - The total travel time for a day must not exceed the time between the start and end time.
  - A warning is given if the person rode uninterrupted for more than two hours.

- The odometer value must increase during a travel day.
- A warning is given if the vehicle exceeded 80 km/hr for a given day.
- A warning is presented if the vehicle did not travel sufficient distance to visit the listed towns/suburbs on a travel day. The distance required is based on a simple calculation based on the suburb centroids, and whether the start and end suburb were the same.
- A warning is presented if a suburb visited or street used is not in the existing lists provided.
- A warning is provided if the person did not wear a helmet.
- A warning is provided if the person did not wear any protective clothing.
- A warning is provided if both a full face helmet and an open helmet were worn on the same day (this is possible, for different trips, but unlikely).
- A warning is provided if both a suit and body armour, or a suit and pants, were worn on the same day (this is possible, for different trips, but unlikely).
- The helmet and clothing warnings as above also apply to the pillion passenger answers.
- A warning is provided if no visited suburbs or streets used are listed.



## Appendix I: INR Imputation Methods

### Person File Imputation

Variable	Method	Independent Variables (in order)	n	N	%
Sex	Hot-deck	Person Number; Region	1	688	0.1%
YearOfBirth	Hot-deck	Sex, Region	7	688	1.0%
MonthOfBirth	Hot-deck	YearOfBirth	12	688	1.7%
LicenceYear	Hot-deck	Age, LastRodeYear	19	688	2.8%
LicenceMonth	Hot-deck	LicenceMonth	265	688	38.5%
LastRodeYear	Hot-deck	LicenceYear, AgeGroup	40	688	5.8%
LastRodeMonth	Hot-deck	LastRodeMonth	269	688	39.1%
LastRodeDay	Hot-deck	LastRodeDay	294	688	42.7%

(n = number of records requiring imputation)

(N = total number of valid records)

(% = percent of valid records requiring imputation)

### Vehicle File Imputation

Variable	Method	Independent Variables (in order)	n	N	%
Year	Hot-deck	Make, Model, Ownership	6	186	3.2%
Model	Hot-deck	Make, CC, Year	6	186	3.2%

### Travel File Imputation

Variable	Method	Independent Variables	N	N	%
StartHour	Hot-deck	DayOfWeek, WhyWork, WhyTouring, AgeGroup	16	572	2.8%
StartMinute	Hot-deck	DayOfWeek, WhyWork, WhyTouring, AgeGroup	16	572	2.8%
StartAMPM	Hot-deck	DayOfWeek, WhyWork, WhyTouring, AgeGroup	15	572	2.6%
EndHour	Hot-deck	DayOfWeek, WhyWork, WhyTouring, AgeGroup	21	572	3.7%
EndMinute	Hot-deck	DayOfWeek, WhyWork, WhyTouring, AgeGroup	21	572	3.7%
EndAMPM	Hot-deck	DayOfWeek, WhyWork, WhyTouring, AgeGroup	13	572	2.3%
DayTime	Hot-deck	HoursRidden, DayDistance, WhyTouring, WhyWork, DayFurthestReach	18	572	3.1%
DayDistance	Hot-deck	DayTime, WhyTouring, WhyWork, DayFurthestReach	53	572	9.3%
WhyOtherSpecify	Hot-deck	DayOfWeek, WhyWork, DayFurthestReach	3	572	0.5%
TravelWith	Hot-deck	WhyTouring, WhyWork, DayOfWeek	15	572	2.6%
Pillion	Hot-deck	WhyTouring, WhyWork, DayOfWeek	11	572	1.9%

(Note that all time and distance fields are jointly imputed, to ensure logically consistent results.)